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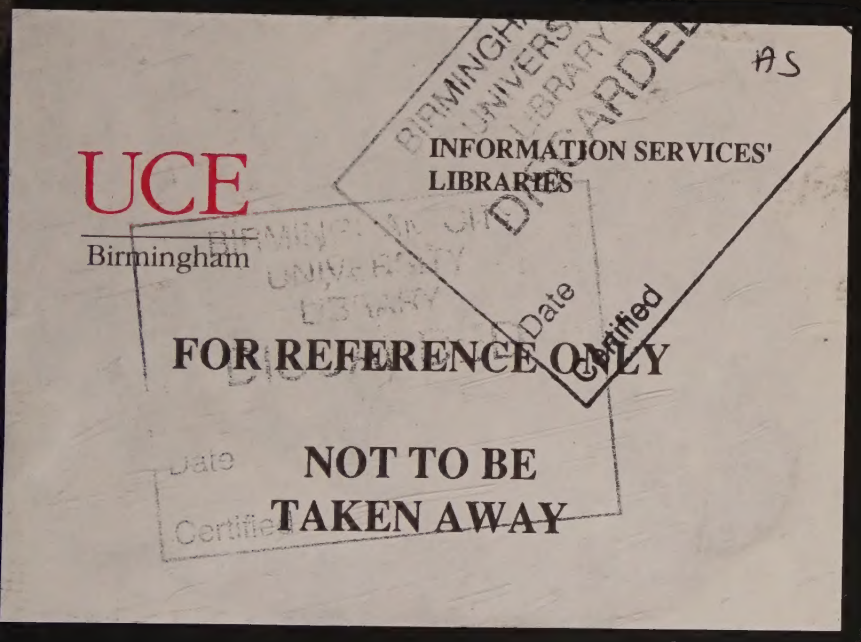

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A NATURAL HISTORY OF

BRITISH MOTHS,

ACCURATELY DELINEATING EVERY KNOWN SPECIES,
WITH THE ENGLISH AS WELL AS SCIENTIFIC NAMES, ACCOMPANIED BY FULL DESCRIPTIONS,
DATE OF APPEARANCE, LISTS OF THE LOCALITIES THEY HAUNT,
THEIR FOOD IN THE CATERPILLAR STATE, AND OTHER FEATURES OF THEIR HABITS
AND MODES OF EXISTENCE, ETC., ETC.

BY

THE REV. F. O. MORRIS, B.A.,

Author of A History of British Birds, A History of the Nests and Eggs of British Birds,
A Natural History of British Butterflies,
Etc., Etc., Etc.

THE PLATES CONTAIN NEARLY TWO THOUSAND EXQUISITELY COLOURED SPECIMENS.

COMPLETE IN FOUR VOLUMES.

VOLUME I.

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1872.

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INTRODUCTION.

In compliance with many and long-repeated requests, I have at last, after as many and as repeated demurs, made up my mind to write a Natural History of British Moths, in hope that the favour shown to my former books on kindred subjects may be continued towards the present one. My object throughout has been, in all my works, to write for the people at large, and to invite to science rather than to deter from it. I have both seen and heard enough, and too much, of the evil caused by some, who, in the vain and empty desire to be thought scientific themselves, have debarred their readers from becoming so. They may please those whose own nature leads them to take "omne ignotum pro magnifico," but I know that they have not had, and do not gain, the good will and thanks of the many, whose approbation I would rather win. They get nothing but contempt from that class which is the largest, and for whom I have written and still write. I well know that the more involved the mode of dealing with a subject, or of setting forth a theory, the greater will be the admiration of some for him who treats of the one or propounds the other; while the more clear a

difficulty is made by the plain and perspicuous language employed by a writer, the lower will he who has solved it sink in their estimation, as one who has taken trouble for so small an apparent effect. But if science has to do with facts, my work, as any one may prove for himself, may justly lay claim to a more scientific character than appertains to many that have preceded them. In writing for one's own countrymen, words and language need not be employed, the sole effect of which will be to conceal the meaning professedly intended to be conveyed. It is only those who are more or less ignorant themselves that think nothing can be considered scientific which is not couched in language beyond the comprehension of the readers whom it ought to be its object to enlighten: they who are wiser will be content to convey information in words that may be at once and readily "understanded of the people." I, for my part, have sought to elucidate rather than to mystify, and to make others sharers in what knowledge I myself have been favoured with the possession of, rather than to set up a pretence to undue importance by a vain display. I have accordingly adapted my style and language to the comprehension of all, translating everywhere when necessary, having no wish to parade difficult scientific terms at the expense of my readers.

As to the general plan of the work, while giving the Latin names of the several species, I have preserved all the common English ones for those who, like myself, will ever take a pleasure in them. That is a praiseworthy rather than a censurable feeling which makes the inhabitants at large of our villages and towns cling to the country names of the natural objects around them. It is a feeling which I for one would altogether encourage rather than at all despise. I know, at the same time,

that nothing can be done in Natural History without scientific terms, and that these must be given in the words of an obsolete language in order to their communication among the nations of the world whose tongues are so various and even their idioms so diverse. This, I say, I know; but I know also, as one who has had the benefit of a classical education, that though these passwords will do for the learned, they will not do for those who have had no opportunities of becoming so, and that if you would gain the hearts of the people to the studies you love yourself, you must make yourself at home with them in the outset in the words you employ. Nay, more, if you would have them wholly with you, you must let them see and feel that you yourself are one of them in taste and feeling. Who, that knows anything of the "Pleasures of Memory," would change the common English names of our wild plants for others of a more pretentious character, and make, as it were, his own youth no part of his present existence? Who would not leave the humble Daisy to be a Daisy still? Who, that has ever been a child, would wish the Heart's-ease to be other than the Heart's-ease, the Butter-cup than the Butter-cup, the Lark-spur than the Lark-spur, the Mouse-ear than the Mouse-ear, the Foxglove than the Foxglove? What lover will wish the Forget-me-not to be no more had in remembrance, or the name of the Violet to be done away? Who, of any age, or in any situation or station of life, but will stand up, for "Auld Lang Syne," for the pale Primrose, and the gay Daffodil, the modest Lily of the Valley, and the blushing Eglantine, the fragrant Meadow-sweet, the tender Hare-bell, the lowly Speedwell, the scented Sweetbriar, the pure Snowdrop, the lovely Hawthorn, and the welcome Traveller's Joy, each of which gives in turn a charm

to every country walk—a charm both present in itself and borrowed from a distance,—an unfailing pleasure to the passing moment, and a happy remembrance of the past: the Enchanter's Nightshade may cast a soothing spell over a dark and gloomy mood of the mind: who is there whom even the "Green Turf" does not delight? Who,—to quit the wild for cultivated ground,—Who, "to dull forgetfulness a prey," would wish the Rose, the Pink, the Sweet Pea, the Tulip, or the Narcissus, to be other than they are in nature or in name? Who does not feel that the spirit of romance and poetry is unfadingly thrown over the "Royal Oak," the "Brave Old Oak," and the "Ivy Green," the "Miseltoe Bough," and the "Bonny Blue Bell," the "Thistle so true," and the very "Bank whereon the Wild Thyme grows"? Nay, do not fear that these names will ever give place to others! They will last as long as the mother earth that bears the plants themselves: the nation will no longer be itself when the Rose, the Leek, the Shamrock, and the Thistle cease to be "Household Words,"—when they cease to be the cognizance and the badge of St. George, St. David, St. Patrick, and St. Andrew, the heroes and saints of the "olden time." As it has been in the days before us, so do we find it to be yet, and so will it be after we are gone, with the well-known English names of our common butterflies and moths. By these will they still be known when the fancies and conceits which in vain try to supersede them, have sunk into deserved oblivion. The gay science numbers some of all classes in her ranks:—the nobleman's or gentleman's son at school and at college; the apprentice lad of the great city who may one day rise to be Lord Mayor of London; the country clergyman in the quiet parsonage of the sequestered village; the decent trades-

man of the country town; the hardy husbandman in his neat cottage; the mechanic whose head and hand are busy; the gallant naval or military officer, the defender of the land; many of England's fairest daughters, and many of her heartiest sons. These, be sure, will ever continue to keep what they have already preserved so long.

I have avoided very minute descriptions of the insects, being convinced that they often bewilder instead of being good guides; for such are the almost endless varieties of the various specimens themselves, that if they be attended to in the account of one they will not apply to another of the same kind, nay not even to another of the same brood. My object has not been to fill space, but to make things plain; "ut multum nil moror"—"brevis esse laboro"—I have aimed at conciseness, and avoided prolixity. But I have used no abbreviations, as I think it is perfectly clear that what those who are fond of them profess to save in the way of space, is, for the most part, far more than lost in the trouble caused by actual or mental search and research to ascertain or remember their meaning. Also, I have, for the most part, taken no notice of the fact of an insect having been more plentiful at any place at one season or time than another, inasmuch as every Entomologist knows that such discrepancies are most easily to be accounted for, and that the continuance of the relative abundance or scarcity of the species is not to be looked for or depended on, in consequence of diversity of season, the alteration of the suitableness or unsuitableness of a locality by agricultural improvement or otherwise, and the difference in the way it is explored, either by a greater number of insect-hunters, or by their greater assiduity and attention, more close investigation, or more

frequent or more opportune looking after the several kinds.

Those who from their youngest days have been lovers of "Nature," and who have in advancing years—even those of earlier date—been led against their natural wishes to think of the future of the field before them, have,—to judge from myself and my own thoughts and feelings in the like case—been constrained to deplore the onward march of cultivation, and to fear for its results when still more advanced on the creatures "feræ naturæ" around them; to sigh for the return of the days that are gone, those which they themselves have known, and to sigh still more deeply for those of a yet further bygone age, of which they have heard with listening ears, and have read with admiring and longing eyes. But every one of a right turn of mind will take more than one view of things, and the Naturalist will console himself, at all events to a certain extent, by calling to mind the many advantages to those around him and himself which higher cultivation and higher civilization—for the land is the very source and origin, in some way or other, direct or indirect, of all bodily advantages—naturally and unfailing secure. And, further than this, whether it be that necessity, which is the mother of invention to men, asserts the same successful dominion over the other creatures, and, bending even instinct to her sway, accommodates them to the altered circumstances of the times, or whatever the cause, he still rejoices, and has reason to rejoice, in the double result,—the progressive advance of the age, and the preservation through all vicissitudes of so many creatures of the hand of the Immortal, which the same hand by His providence has preserved through a "thousand generations," which though to Him "but as yesterday," are coeval in our

calculation with the beginning of time itself. It will be gratifying to my readers to see how numerous are the kinds that are still to be met with, even in the immediate neighbourhood of our largest cities and towns. Whether it be that the introduction of new plants on which they feed encourages their growth, or that the climate is improved for their existence by drainage and cultivation certain it is that in many cases where we should have looked for extinction of race, we find increase; where we should have thought that this or that kind would have perished through and together with the eradication of weeds, we find them to thrive on the very same plants that nourish ourselves.

I have given an extensive list of the localities where the several species are to be found, and I have thought it better where I could, especially in the case of rare insects, to give exact dates as well, for "It's a long cry to Lochow," and without close instructions a hunter might wander far from his game. The day of the month when a capture was made will, therefore, too, in like manner, often, though not always, be useful; as well as the particular spot, the exact "locus in quo." Even when a species is "common," "plentiful," or "abundant," "everywhere," I have still thought it better to indicate a few of the places, widely separate, where it occurs or has occurred. I have not taken up space with synonyms, as they may be had in any mere catalogue. When the male only is mentioned, the female is to be understood as of general resemblance to it. I have described the upper and under wings severally as of a triangular shape, within the inner corner, lower corner, and outer corner.

Of the larger species, of course fewer figures are given, though I think it will be allowed, considering the

admirable way in which they are executed by the careful artist whose name is a guarantee for their excellence, that they are as many as could be reasonably expected for the price charged and the risk incurred; but a much greater number are given of those of smaller size; and I venture to anticipate the thorough satisfaction of all.

F. O. MORRIS.

Nunburnholme Rectory, Hayton, York.

NATURAL HISTORY OF BRITISH MOTHS.

SPHINGIDÆ.

SMERINTHUS OCELLATUS.

EYED HAWK-MOTH.

Plate I. *Figure* 1.

This moth measures from two inches and three quarters to nearly three and three quarters. I have a specimen in my cabinet which is only two inches and a half in width. It is the smallest I ever saw. Male: front wings, which are scooped on the outer side, fine rich rose-tinted grey-brown, very pleasingly variegated with pale chocolate or olive brown, of which there is a bar indistinctly traceable across the middle, waved most on the inner side; the outer corner brown, the tip pale on its upper half. Hind wings elegant rose red, shaded off to grey on the margin, with a large greyish-blue eye spot encircling a black pupil, and surrounded by a black rim, in the shape of a Q with its tail, near the lower corner.

Localities for this species, which is widely distributed throughout the country, are, among others, York, Scarborough, Huddersfield, Nafferton, Sutton-on-Derwent, Halton, Wavendon, Lewes, Manchester, Leicester, Falmouth, Ashford, Canterbury, Faversham, Bisterne, Carlisle, Wallasey, Lyndhurst, Bromsgrove, Worcester, Birkenhead, Bristol, Epping, Brighton, Blandford, Darlington, Burton-on-Trent, Exeter, Cambridge, Preston, Plymouth, Stowmarket, Shrewsbury, Winchester, Tenterden, Teignmouth, Worthing, &c. In Scotland it is rare.

The situations where it is found are very various, as are the trees it frequents in the larvæ state, both near water and far from it.

The dates of the appearance of the perfect insect are the end of May and beginning of June, and on to the beginning of July. June 5, June 11.

The caterpillar is green minutely dotted with white, with seven or eight slanting white bars on each side, bordered above with darker green; the head has a yellow border; the tail is blue, tipped with dull green, or blackish.

The date of the appearance of the caterpillar is from August to September.

It feeds on the willow, the sallow, and the poplar, but will also eat the apple, the sloe, the peach, and the almond.

SMERINTHUS POPULI.

POPLAR HAWK-MOTH.

Plate I. *Figure* 2.

This insect measures from about three inches to rather over four. Male: front wings much indented on the outside, grey, with a faint tinge sometimes of lilac, and clouded with pale brown; a broad bar of olive-green brown crosses the wings, with a light oblong mark in the middle of its upper portion, and beyond it, after a stripe of the ground colour, the outer margin is darker also, but divided halfway up by the grey. Hind wings somewhat indented, grey, dull red at the base, and with two narrow waved stripes of greyish-brown between it and the outer margin.

The female is generally paler than the male.

Localities for the species, which is extensively dispersed throughout the country, are, among others, York, Ordsall, Huddersfield, Nafferton, Brighton, Cambridge, Exeter, Edinburgh, Lewes, Birkenhead, Durham, Weston-super-Mare, Llanelly, Manchester, Shrewsbury, Teignmouth, Preston, Darlington, Stowmarket, Wavendon, Plymouth, Oxford, Bristol, Blandford, Glasgow, Epping, Leicester, Scarborough, Kingsbury, Ramsgate, Tenterden, Halton, Truro, Barnstaple, Lower Guiting, Worthing, Lyndhurst, Winchester, Burton-on-Trent, Southport, Duddingston, Falmouth, Ashford, Faversham, Canterbury, Rotherham, Bisterne, Wells, &c.

The dates of the appearance of the perfect insect are from the latter end of May, through June and July, and even in August and September. One on December 13.

The caterpillar is of a green colour, dotted with yellow, and with seven slanting yellowish-white lines on the sides. The tail is yellowish above, and reddish underneath.

The date of the appearance of the caterpillar is in August and September. August 22nd.

It feeds on the different species of poplar, as also on the sallow, the laurel, the laurustinus, the aspen, and the birch.

This species varies considerably in colour as well as in size; some specimens being of a yellowish brown, more or less deep, and others of deeper or lighter grey. One has been known without the red mark at the base of the hind wings, and four instances have occurred in which the wings on one side have been those of the male, and on the other those of the female, and the antennæ likewise divided in the same way. It has been known to pair with *S. ocellatus* and *S. ligustri.*

SMERINTHUS TILIÆ.

LIME HAWK-MOTH.

Plate I. *Figure* 3.

This insect measures variously from about two to three inches in the expanse of the wings. Male: front wings of a greenish grey, or brown, with a broad angular bar on the centre, in some individuals continuous, and in others more or less interrupted, of olive green; over the tip is a patch of light buff with very pale green; hind wings rather light fulvous brown, with a broad dark dull brown bar, more or less distinct, running from the outer to the lower corner, near which it ends in a blackish spot or mark. The wings are much scalloped or indented on the outer margins.

Localities for this species are Bromsgrove, Worcester, Bristol, Cambridge, Kingsbury, Teignmouth, and near London, Ramsgate, Ashford, Canterbury, Chilham, Faversham, Rugby, Chingford, Blandford, Lower Guiting, Wavendon, Stowmarket, Exeter, Dorchester, Lyndhurst, Epping, &c.

The date of the appearance of the caterpillar is from the middle of August to the end of September.

It feeds on the lime and the elm, as also, it is stated, on the alder, birch, and ash.

This handsome insect varies in different specimens in having more or less of a brown or green general character as the ground colour. The patches on the wings also vary in size, and in some specimens they are different on the opposite side.

ACHERONTIA ATROPOS.

DEATH'S-HEAD HAWK-MOTH.

Plate II. *Figure* 1.

This insect measures from four inches to five, and even more, across the wings. Male: front wings rich dark blackish brown, with a small yellowish dot near the centre, and a variety of rich fulvous markings. Hind wings deep yellow, or fulvous orange, with a broad dull black band near the lower margin, and a distinct narrow one withinside it.

Localities for this species are York, Nunburnholme, Sutton-on-Derwent, Huttons Ambo, Pickering, Langwith, Nafferton, Barmston, Huddersfield, Cambridge, Lewes, Birkenhead, Teignmouth, Leicester. Bristol, Stowmarket, Shrewsbury, Darlington, Epping, Blandford, Burton-on-Trent, Exeter, Worthing, Glasgow, Winchester, Truro, Chelmsford, Brighton, Tenterden, Lyndhurst, Hull, Brigg, Scarborough, Morpeth, Hessle, Edinburgh, Dorchester, Lancaster, Haslemere, Reigate, Merthyr Tydvil, Thanet, Canterbury, Faversham, St. Lawrence, Emsworth, Bolton, Worcester, Carlisle, Halton, Kingsbury, The Land's End, Duddingston, Manchester, Preston, Plymouth, Tooting, Chipping Norton, Morningside, Gwillin Vase and Nangatha Farm near Falmouth, Sudbury, Ipswich, Ely, Newcastle-on-Tyne, Black Park, Warwick, Ventnor, Maidstone, Brentwood, Clonmel, Lewisham, &c., &c.

The dates of the appearance of the perfect insect are the months of August, September and October. Sep. 28, 30.

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The caterpillar is dull yellow, verging into green below and towards the head, and with seven slanting purple stripes, their front edge blue and the hind one white, on the sides; the back is minutely dotted with black; the tail is yellowish. Sometimes the caterpillar is brown olive colour, whitish in front, and the stripes darker.

The date of the appearance of the caterpillar is from the middle of July to the beginning of October. July 7, 20; September 14, 19, 20, 21, 22, 27; October 2, 11. It is very often found in potato-fields, and frequently in considerable numbers, some seasons more than others. It sometimes remains more than a year in the chrysalis state.

It feeds on the potato and the tea tree *(Lycium barbarum)*, but has also been found on the woody nightshade *(Solanum dulcamara)*, elder, thorn-apple, spindle tree, ash, jessamine, sweet pea, and other trees and plants.

SPHINX CONVOLVULI.

CONVOLVULUS HAWK-MOTH; BIND-WEED HAWK-MOTH; UNICORN HAWK-MOTH.

Plate II. *Figure* 2.

This insect measures from three inches and three quarters to four and three quarters; the female is the larger. Male: front wings fine deep ash grey, with an indistinctly defined black bar widely scooped out on the inner side, and other paler and darker waved marks. Hind wings pale ash grey, with a black mark or short bar near the base, two black narrow central streaks which sometimes run together into one wider one, and another round and following the margin, much wider at the outer corner.

Female: front wings without the dark bar, but with two distinct narrow black longitudinal streaks near the middle.

Localities for this species are, among others, York, Nafferton, Lancaster, Aldburgh, Ipswich, Glasgow, Breadsall, Northampton, Kingsland, Peckham, London, Leeds, Chatteris, Sutton-on-Derwent, Fordingbridge, Kirkstall, Bridge-

water, Congleton, Cambridge, Dublin, Tinahely, Frome, Brighton, Swansea, Dorchester, Herne Bay, Gillingham, Lyndhurst, Hammersmith, Dunkirk, Camberwell, Blackheath, Mortlake, Tooting, Faversham, Tonbridge, Hythe, Maidstone, Dartford, Ashford, Kingston, Arundel, Battle, Newhaven, Ticehurst, Balgreen, Duddingston, Falmouth, Norwich, Sudbury, Aylsham, Yarmouth, Ipswich, Chelmsford, Colchester, Ely, Nottingham, Crediton, Ryde, Chipping Norton, Uppingham, Sidmouth, Land's End, Barnstaple, Weston-super-Mare, Worcester, Southport, Driffield, Hull, Clonmel, Yarm, Deal, Brantingham, Newcastle-on-Tyne, Halifax, Wakefield, Wallington Castle and Norham Vicarage in Northumberland, also at Alloa, Edinburgh, Gosport, Darlington, Bristol, Penzance, Caithness, Stowmarket, Exeter, Winchester, Lewes, Lower Guiting, Burton-on-Trent, Blandford, Hackney, Halton, Kingsbury, Manchester, Epping, Plymouth, Truro, Glasgow, Leicester, Huddersfield, Worthing, Preston, Teignmouth, &c., &c.

The situations where it is found are chiefly in gardens, hovering on the blossoms of the phlox, petunia, carnation, marvel of Peru, &c.

The dates of the appearance of the perfect insect are from the early part of August to September. August 10, 12, 15, 22, 24, 26, 31. It has been taken as early as the 8th of June, September 2, 11, 12, 13, 15, 17, 19, 22.

The caterpillar varies in colour from green to brown, with black dots surrounded with white, and with seven oblique streaks on the sides.

The date of its appearance is July.

It feeds on the lesser convolvulus or bind-weed (*Convolvulus minor*), wild balsam (*Impatiens noli-me-tangere*), &c.

This fine insect was remarkably abundant in the years 1846 and 1859, and several hundred specimens are on record as having been taken in various parts of the country. I myself took six in the former year, in the garden of Nafferton Vicarage, my then residence, and saw others. On one occasion I had one in the net, while two others were hovering on the plant on which I had taken it.

SPHINX LIGUSTRI.

PRIVET HAWK-MOTH.

Plate II. *Figure* 3.

This fine insect measures from about three inches and three quarters to four and a third. Male: front wings pale reddish brown, with a few black longitudinal streaks across a dark brown patch running from the whole of the middle of the lower margin to the tip; outside it is a dark line of the same. Hind wings pale rose red, with three black streaks, one small one near the base, the two outer ones following the course of the margin. The fringe greyish brown.

Localities for this species are York, Kexby, Elvington, Doncaster, Nafferton, Faversham, Wells, Kingsbury, Looe, Halton, Lower Guiting, Glasgow, Lewes, Ramsgate, Stowmarket, Brigg, Truro, Wavendon, Winchester, Worthing, Burton-on-Trent, Epping, Falmouth, Brighton, Sudbury, Ely, Canterbury, Dartford, Chingford, Bisterne, Blandford, Barnstaple, Weston-super-Mare, West Looe, Teignmouth, Nunburnholme, Dorchester, Swinhope, Scarborough, Tenterden, Plymouth, Exeter, Birkenhead, Bristol, Worchester, Bromsgrove, West Rasen, &c., &c.

The situations where it is found are chiefly gardens.

The dates of the appearance of the perfect insect are June, July, August, and September. June 27, August 24, 31, September 13, 15.

The caterpillar is of a very clear green colour, with seven white slanting streaks bordered with lilac on the upper edges and the sides; the tail is black, except part of the lower side, which is yellow.

The dates of the appearance of the caterpillar are in the months of July, August, and September—July 18, August 20, September 12, 17.

The caterpillar feeds on the privet, guelder rose, hop, ash, laurustinus, lilac, and holly.

It sometimes remains in the chrysalis state for two or three years.

DEILEPHILA EUPHORBIÆ.

SPOTTED HAWK-MOTH.

Plate III. *Figure* 1.

This insect measures from two inches and a quarter to nearly two and three quarters in extent. Male: front wings light greenish grey, white at the base from the down of the body, followed by an olive-green waved short bar, this by a smaller one, and this by a third still smaller mark, all three united by a line of the same colour which runs along the upper margin of the wing. Hind wings clear rose red, white at the lower corner, the base black, and a narrow black line of variable width following the outer margin a little within it; outside the line the pink is much paler.

Localities for this species are Treworles near Falmouth, Worcester, Boxhill, Taunton, Isle of Wight, Coventry, Scarborough, Braunton Burrows near Bideford, and Barnstaple, and Formby near Liverpool.

The situations where it is found are sandy places on the coast.

The date of the appearance of the perfect insect is June.

The caterpillar is black, interrupted with red and dark bands, in the former colour a double row of pale yellow spots along the sides, the upper much larger than the lower, a red line along the back, and a narrow one on each side above the legs, which are red; head also red; the tail red, its tip black.

The date of the appearance of the caterpillar is from the middle of August to the middle of September. It sometimes remains in chrysalis for two years.

The caterpillar feeds on the sea spurge (*Euphorbia paralias*), and the cypress-leaved spurge (*Euphorbia cyparissias*).

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DEILEPHILA GALII.

SCARCE-SPOTTED HAWK-MOTH. MADDER HAWK-MOTH.

Plate III. *Figure* 2.

This insect measures from two and a half to three inches in the expanse of the wings. Male: front wings fine clear olive green, the lower margin paler, and a yellowish white streak from below the base to the tip, indented along its upper edge. Hind wings black at the base, white at the lower corner, succeeded by a pale red patch, fading outwards into pale yellowish or reddish white, with a clear black line following the lower edge.

Localities for this species are Warwick, Gogmagog, Cambridge, Askham Bryan, Woolwich, Darenth Wood, Kingston, Arundel, Bridgewater, Taunton, Stowmarket, Worcester, Rugeley, Dunkirk, Darlington, Aylesbury, Gainsborough, Leckhampton, Bungay, Tunbridge Wells, Wallasey, Macclesfield, Hull, Hedderwick Hill near Dunbar, York, Clevedon, Tunbridge, Felixstowe, Cramond, Wheaton, Twizel, Manchester, Plymouth, Bristol, Lewes, Thurning, Huddersfield, Birkenhead, Epping, Deal, Exeter, on the Dyke Road near Brighton, Dover, Faversham, Rainham, Whitefield near Bury, Stamford Hill, Hackney, and other places near London.

The dates of the appearance of the perfect insect are from the beginning of July to the middle of August, and even in September and October. July 4, 5, 26, August 11.

The caterpillar is dull greyish green, with a row of large pale yellow round spots, each in a black rim, along the sides, smaller towards the head, and a red streak along the back. The tail bright red.

The date of the appearance of the caterpillar is from the middle of August to the middle of September. August 26, September 20. One was taken in a garden at Falmouth, January 5th, 1863.

The caterpillar feeds on the yellow bed-straw (*Galium verum*) and the fuchsia.

DEILEPHILA LIVORNICA.

LINED HAWK-MOTH. STRIPED HAWK-MOTH. RAYED HAWK-MOTH.

Plate III. *Figure* 3.

This insect measures three inches and a quarter, or a little over, across. Male: front wings dark olive green, with a pale streak from the lower side to the top. Hind wings rose red, whitish within to the lower corner, and paler outside the marginal band; the base with a large indented black patch and a narrow distinct line following the margin. The veins of the wings show distinctly white.

Localities for this species are Doncaster, Kingsbridge, Birkenhead, Arundel, Brighton, Pennance near Falmouth, Exeter, Land's End, Cork, Tremeri, Freshwater and Bembridge in the Isle of Wight, St. Leonard's-on-the-Sea, Lewisham, Herne Hill, Worthing, Deal, Plymouth, Westbourne, Colchester, Torquay, Barnsley, Leicester, Lewes, Manchester, Preston, Glasgow, Hammersmith, Penzance, Pendarves, Ventnor, Langport, Carlisle, and Bristol. One was taken in London.

The dates of the appearance of the perfect insect are in the months of August and September, also in April, May, and June—April 16, 29, May 2, 4, 6, 12, 13, 14, 15, 17, 19, 20, 21, 25.

The caterpillar is dull greyish yellow, with a broad black line along the back, and another along the lower part of the sides. Below the former is a row of ten pale dull yellow spots, with a large black centre to each, except the last. The tail is red.

The date of the appearance of the caterpillar is June and July—June 18.

The caterpillar feeds on the yellow bed-straw (*Galium verum*) and the vine.

CHÆROCAMPA CELERIO.

SILVER-STRIPED HAWK-MOTH. SHARP-WINGED HAWK-MOTH.

Plate IV. *Figure* 1.

This handsome and scarce insect measures from two inches and three quarters to three, or a little over. Male: front wings pale greyish brown, with a darker shade, and near the middle there is a white spot with a dark centre. A dull yellowish slightly-waved band extends from the lower margin near the base to the tip, its inner sides verging to a white border. Hind wings rose colour, brighter towards and at the base, paler towards the margin, with a narrow-waved black band following the margin, and a rather wider one, but shorter, within it near the centre, the two connected by six fine black streaks or veins; the outer margin greyish.

Localities for this species are York, Doncaster, Henley-on-Thames, Tenterden, Norwich, Chelmsford, Ledbury, Chichester, Worcester, Hull, Bolton, Beccles, Darlington, Newark, Weymouth, Hopetown, Tooting, Gainsborough, St. Leonard's-on-Sea, Tarrington near Ledbury, Huddersfield, Eltham, Stowmarket, Brighton, Brantinghamthorpe, Ely, Birkenhead, Lewes, Harleston, Wisbeach, Welton near Howden, South Walsham, Bristol, Seaford, Manchester, Worthing, Brampton near Carlisle, Leicester, Oxford, Great Baddow, Preston, Carlisle, Cockermouth, Wakefield, Matlock, Tottingham, and near London. In Scotland, also in the Isle of Mull, and at Alloa. "N.B."

The dates of the appearance of the perfect insect are in the months of August, September, and October. September 12, 19, 20, 21, 22, 24, 27, 28, October 5, 22. They have also been taken in March and April—March 15, April 6, and at the end of the month.

The caterpillar varies from brown or purple brown to green, with two yellow lines on the sides, the upper one on the hinder half, and two distinct black spots, surrounded by a yellow rim, the one larger than the other. The tail is brown.

The date of the appearance of the caterpillar is in July and August, and also in September.

The caterpillar feeds on the vine and also the yellow bed-straw (*Galium verum*).

CHÆROCAMPA PORCELLUS.

SMALL PINK ELEPHANT HAWK-MOTH.

Plate IV. *Figure* 2.

THIS insect measures from one inch and three quarters across to a little over two inches. Male: front wings dull but clear greenish yellow, with a fine broad pink margin, indented on its inner side, and the upper margin the same in two large oblong patches. Hind wings dark blackish olive green at the base and upper part, the centre dull but distinct greenish yellow, the outside border dull purple red pink, the extreme margin on the lower corner white.

Localities for this species are Doncaster, York, Edinburgh, Stowmarket, Dublin, Blandford, Cambridge, Plymouth, Bristol, Lewes, Birkenhead, Epping, Manchester, Preston, West Rasen, Tenterden, Wavendon, Ramsgate, Falmouth, Dover, Croydon, Bisterne, Chingford, Sudbury, Ely, Haynes Park, New Forest, Bolton, Ilfracombe, Brighton, Halton.

The situations where it is found are in woods, lanes, and gardens, hovering over the honeysuckle and other sweet-scented flowers.

The dates of the appearance of the perfect insect are at the end of the month of May, and in June and July —July 13.

The caterpillar is variously light green mottled with a darker shade of the same or black, or light brown varied in like manner with dark brown or black. There are two large blue spots on the side, and traces of another, indicated by a few black spots. The tail is only rudimentary.

The date of the appearance of the caterpillar is in July and also in August—August 4, 18.

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The caterpillar feeds on the yellow bed-straw (*Galium verum*), willow-herb (*Epilobium hirsutum*), and also on the vine.

The name Elephant Hawk-Moth is derived to these species from the resemblance of the front part of the caterpillar to the proboscis of an elephant when feeding.

CHÆROCAMPA ELPENOR.

LARGE PINK ELEPHANT HAWK-MOTH.

Plate IV. *Figure* 3.

This beautiful insect measures from two inches and a little over a quarter to two and a half. Male: front wings glossy olive green, within the front edge a broad bar near the base, a slanting line across to the tip and a broad border on the outside margin of fine purple pink red. Hind wings dull black at the base: the remainder fine pink red with a yellowish white edge.

Localities for this species are Leeds, Scarborough, York, Sutton-on-Derwent, Sand Hutton, Buttercrambe Moor, Askham Bog, Huddersfield, Truro, Epping, Blandford, Kingsbury, Leicester, Manchester, Preston, Sheffield, Tenterden, Cambridge, Birkenhead, Exeter, Lewes, Plymouth, Stowmarket, Teignmouth, Brighton, Lyndhurst, Wavendon, Lower Guiting, Halton, Edinburgh, Burton-on-Trent, Bristol, Bisterne, Falmouth, Ely, Faversham, Dover, Canterbury, Ashford, Dartford, Chingford, Sudbury, Hackney, Sherwood Forest, Ilfracombe, and Battersea.

The date of the appearance of the perfect insect is the month of June.

The caterpillar is usually dark grey, mottled with blackish, with two large black spots on the sides, within which, on the upper part, is a white border surrounding a greyish brown spot.

The date of the appearance of the caterpillar is at the end of July and the beginning of August—August 15, 20.

The caterpillar feeds on the willow-herb (*Epilobium hirsutum*), the bed-straw (*Galium pratense*), and also on the vine and the fuchsia.

CHÆROCAMPA NERII.

OLEANDER HAWK-MOTH.

Plate V. *Figure* 1.

THIS rare insect (rare at least in this country) measures across from four inches and a little over to four and over a quarter. Male: front wings grey with a very faint tinge of rose-red colour, with several irregular blots or patches of clear deep green, these more or less crossed with waved white streaks. Hind wings purple grey, brown at the base, with a whitish waved line a little beyond the middle, the outside margin shaded off into dull green, except at the lower corner which is pale coloured.

Localities for this species are Brighton, the Isle of Wight, Barnstaple, Dover, Teignmouth, St. Leonard's-on-the-Sea, Eastbourne, Hastings.

The situations where it is found are gardens, &c.

The date of the appearance of the perfect insect is in August, September, and October—August 2, Sep. 2, 11.

The caterpillar is dull green or yellowish, with a streak of white, and many small dots of the same, and two large eye-like dots on each side.

The caterpillar feeds on the oleander (*Nerium oleander*), and had also been found on the periwinkle and the potato.

Very few cabinets possess authentic specimens of this fine and conspicuous moth.

MACROGLOSSA STELLATARUM.

HUMMING-BIRD HAWK-MOTH.

Plate V. *Figure* 2.

THIS insect measures from a little under two inches to two in extent. Male: front wings dark brownish black, with a black dot in the centre, and two black waved lines across, and the trace of a third outside. Hind wings fine

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though dull orange tawny, the base blackish brown, the margin deep purple orange lined with black, deepest towards the outer corner, the extreme edge pale orange yellow.

Localities for this species are York, Scarborough Castle, Sutton-on-Derwent, Sand Hutton, Shrewsbury, Worthing, Darlington, Epping, Teignmouth, Kingsbury, Lewes, Birkenhead, Bristol, Charmouth, Lyme-Regis, Preston, Lower Guiting, Burton-on-Trent, Dorchester, Tenterden, Halton, Wavendon, Truro, Dover, Manchester, Faversham, Derby, Duddingston, Bisterne, Morningside, Sudbury, Newhaven, Falmouth, Dorking, Isle of Wight, Bognor, Ilfracombe, Isle of Man, Barnstaple, Selby, Brighton, Stowmarket, Exeter, Humberstone, Lyndhurst, Cambridge, Edinburgh, Ramsgate, Huddersfield, Plymouth, and Nunburnholme.

The situations where it is found are chiefly in gardens, hovering over flowers, the jessamine, lilac, &c.

The dates of the appearance of the perfect insect are in May, June, July, September, and October—July 29.

The caterpillar is green with white dots, a white line along the side on the upper part, and a yellowish white one along the lower part. The tail dull blue, its tip yellowish.

The date of the appearance of the caterpillar is August and September.

The caterpillar feeds on the white bed-straw *(Galium mollugo)*.

MACROGLOSSA FUCIFORMIS.

BROAD-BORDERED BEE HAWK-MOTH.

Plate V. *Figure* 3.

This bee-like looking insect measures from one inch and three quarters to a little over in width. Front wings black; with a tinge of deep green along the front margin. Hind wings black, with a tinge of deep green at the base; the

outside margin rather broad and very deep rich red brown —the central spot the same colour. All the wings are quite transparent, and most beautifully marked with very distinct lines.

Localities for this species are Stowmarket, Linwood near Market Rasen, Exeter, Epping, Oxford, Blandford, Lewes, Halton, Winchester, Falmouth, Lyndhurst, Brighton, Box Hill, West Wickham, Shooters Hill, Sevenoaks, Leicester, Thetford, Worcester, Langwith near York.

The situations where it is found are open places in and near woods.

The date of the appearance of the perfect insect is in May and June—June 25.

The caterpillar is pale green, with lines of yellow on the back and the sides, which sometimes are spotted with red; the tail orange reddish brown.

The date of the appearance of the caterpillar is in July.

The caterpillar feeds on the honeysuckle.

The moth flies in the sunshine and hovers about the blossoms of the lousewort and the harebell. It is hardly to be discerned from a humble bee, darting with great velocity in its flight: chase is almost useless.

MACROGLOSSA BOMBILYFORMIS.

NARROW-BORDERED BEE HAWK-MOTH.

Plate V. *Figure* 4.

This insect measures from one inch and a half to one and three quarters across. Male: front wings broader than in the last-named species: the upper margin, the base, and a broad border on the inner part of the lower margin, black with a tinge of green: the outer margin fine brown, broader towards the tip. Hind wings tinged with yellowish at the base, the lower margin narrowly bordered with clear brown. The wings are quite transparent, veined distinctly with dark lines.

Localities for this species are Langwith near York, Exeter, Carlisle, Lewes, Oxford, Epping, Manchester, Stowmarket, Cambridge, Birmingham, Huddersfield, Winchester, Enborne near Newbury, Kingsbury, the New Forest, and Coombe Wood.

The situations where it is found are open places in and near woods.

The date of the appearance of the perfect insect is in May.

The caterpillar is green, with yellowish-white dots.

The dates of the appearance of the caterpillar are the end of July and beginning of August.

The caterpillar feeds on field scabious (*Scabiosa arvensis*).

SESIADÆ.

SESIA MYOPÆFORMIS.

Plate V. *Figure* 5.

This insect measures from about nine to ten lines, or ten and a half across. Male: front wings transparent, blackish on the upper and lower edges; the outer edge the same, with a tinge of fine purple or blue-black; the central spot or bar blackish also. Hind wings fringed with blackish; the head is black, thorax black, body black, the last named with one broad red belt on its upper part, but white beneath; the tail-tuft black. In the female the ring on the other side is only edged with white; the remainder being black.

Localities for this species are Hertford, Epping, Kingsbury, Dublin, Bristol, Lewes, Chelsea, Woolwich, Ripley, and other places near London.

The situations where it is found are gardens and orchards, among fruit trees.

The dates of the appearance of the perfect insect are at the end of May, and in June and July.

The caterpillar is to be found in the months of April and May.

It is said to feed on the small stems and twigs of the apple tree.

SESIA CULICIFORMIS.

Plate V. *Figure* 6.

This species varies from about ten lines to an inch or a little over an inch in the width of the wings. Male: front wings transparent, having a blue gloss when held to the light; blue-black on the upper edge, the bar the same, and the outer edge with a tinge of purple violet; the lower edge reddish towards the base. The hind wings have the fringe blackish. The body is blue-black, with a broad ring of red tinged with fulvous; the head and thorax blue-black; the tail-tuft black. The flight of this species is rapid.

Localities for this species are York, Gravesend, Manchester, Epping, Dublin, Coburg-road, and other places near London.

The situations where it is found are open places in woods.

The dates of the appearance of the perfect insect are the end of May and the beginning of June.

The caterpillar is pale dull yellowish white, the second segment dull yellow, the head brown.

The date of the appearance of the caterpillar is in April.

It feeds on the interior of the stems and branches of the birch, and also of the alder; and likewise, according to Mr. Westwood, on the wood of the plum and the apple.

SESIA FORMICÆFORMIS.

Plate V. *Figure* 7.

This very neat insect measures across from ten lines to eleven and a half. Male: front wings transparent, black

with a tinge of red on the margins, the tip broadly edged with fulvous red, the centre bar black. The hind wings have the fringe blackish. The body is black, crossed by a broad deep fulvous red ring; the head and thorax are also black; the tail-tuft black, with a few minute white lines.

Localities for this species are Battersea, Chelsea, and other places near London; Grooby near Leicester, Epping, Cambridge, and, I believe, Birmingham. It is also said that Nicholas Aylworth Vigors, Esq., M.P., obtained it in Ireland.

The situations where it is to be looked for are osier and willow beds.

The dates of the appearance of the perfect insect are in June, July, and August; the latter part of the first-named month, and the earlier part of the last. July 5.

The caterpillar is dull whitish, with brownish spots on the second segment, the head of the latter colour.

The date of the appearance of the caterpillar is in April and also in May.

It feeds on the stems and shoots of different species of willow.

SESIA CHRYSIDIFORMIS.

Plate V. *Figure* 5.

This very rare British insect measures about ten lines across. Male: front wings transparent, black on the upper edge and the outer edge; the bar, which extends half-way across the wing, also black, the tip broadly ended with pale orange-red; the lower edge reddish orange. Hind wings black on the edge, as is the fringe. The body is black, two of the segments edged on their upper side

with pale yellowish white; the tuft or tail black, the middle part yellowish orange-red.

One specimen was taken formerly by Mr. Francillon, and one recently by Mr. Brewer; the latter and another was said to have been taken at Haslor by Mr. Barron.

The date of the appearance of the perfect insect is at the end of June.

SESIA ICHNEUMONIFORMIS.

Plate VI. *Figure* 1.

This insect measures from eight to ten lines in expanse. Male: front wings transparent, brownish black on the upper edge, the outer and lower edges yellowish orange, the central bar orange and brownish black. The hind wings have the fringe brownish black. The body is black with six yellowish rings, the head and thorax brownish black, the tail-tuft, which is narrow, black with two narrow yellow lines. The female has seven yellowish rings.

Localities for this species are Scarborough, Charmouth, on the east cliff low down near the sea, Kingston near Canterbury, Portland, Plymouth, Hastings, Tenterden, Charlton, Creak, Epping, Freshwater Gate near Bristol, and the Isle of Wight.

The situations where it is found are among low vegetation, hovering on flowers, and is especially fond of the scabious (*Scabiosa succisa*).

Dates for the appearance of the perfect insect are July and August.

The name of this species is derived from the resemblance of the shape of its body to that of the Ichneumon bees.

SESIA CYNIPIFORMIS.

Plate VI. *Figure* 2.

This very pretty species measures from about eight to nearly eleven lines across. Male: front wings transparent, with a small yellow spot at the base, blackish brown with a tinge of orange on the upper edge, the outer edge broadly bordered with deep brownish orange, the lower edge narrowly bordered with brownish orange; the central bar deep orange-red. Hind wings veined with fulvous orange and edged with dull orange-brown. The body is rich black with four bright yellow rings, the head and thorax black, the latter with a yellow collar, and a stripe of the same colour on each side; the tail-tuft bright yellow.

Localities for this species are Hyde Park, London, and also Cheltenham, Epping, Clapham Park Wood, Oxford, Bristol, and near Tunbridge.

It is found on oak trees.

The date of the appearance of the perfect insect is in June.

The caterpillar is said to be dull whitish, the head brown.

The caterpillar feeds on the bark of the oak.

SESIA TIPULIFORMIS.

Plate VI. *Figure* 3.

This species measures from nine to ten lines in expanse. Male: front wings transparent, black with a dark orange tint on the upper edge, the tip dull golden orange streaked with black, the lower edge also black with a deep orange

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tinge; the central bar black with an orange tinge. Hind wings edged with black with an orange tint. Head black, thorax black with a narrow yellow line on each side, body black with four very narrow yellow rings; the tail-tuft black. The female has only three yellow rings on the body.

Localities for this species are York, Scarborough, Huddersfield, Shrewsbury, Leicester, Lyme Regis, Exeter, Manchester, Plymouth, Bristol, Birmingham, Tenterden, Glasgow, &c.

The situations where it is found are in gardens, chiefly on and about currant trees.

The date of the appearance of the perfect insect is in June. June 5.

The caterpillar is of a dull white colour, with a dark line along the back, the head light brown.

The dates of the appearance of the caterpillar are in April and May; also I believe, in October.

It feeds on the pith of the currant tree.

This is the commonest of our British species of the genus.

SESIA ANDRENIFORMIS.

Plate VI. *Figure* 4.

This insect measures in width from nine to ten lines. Male: front wings transparent, on the upper margin blue-black, the centre bar blue-black, the outer edge and the lower edge blue-black. The body black, with two narrow pale yellow rings; the tail-tuft black, orange-yellow in the middle; the head and thorax also black.

The only locality for this species known at present is Greenhithe, where one specimen was taken by Mr. Chant in the year 1829, and another by Mr. Harding in 1846.

The situations where it is found are woods.

The date of the appearance of the perfect insect is in the month of July.

SESIA SCOLIEFORMIS.

Plate VI. *Figure* 5.

This insect measures from an inch to an inch and nearly a quarter across. Male: front wings transparent, bluish black on the upper edge, outer edge the same, the centre bar also the same. Hind wings fringed with bluish black. The body bluish black with two rings of yellow, the thorax the same colour with two slanting yellow lines on the sides; the tail-tuft dark brown shaded with deep yellow.

The only locality for this species as given by Mr. Stainton is Bryn Hyfrid near Llangollen, where it was taken by Mr. Ashworth.

The dates of the appearance of the perfect insect are in June and July.

The date of the appearance of the caterpillar is in April.

It feeds on the wood of the birch tree.

SESIA SPHÆCIFORMIS.

Plate VI. *Figure* 6.

This, which is another rare species in this country, measures about one inch and one line across. Male: front wings transparent, black on the upper edge, the outer edge black tinted with purple, the centre bar purple-black. The hind wings transparent, fringed with purple-

black. The body is black with one pale yellow ring, the head black, thorax black, and tail-tuft black; the antennæ, which are also black, have a pale yellowish rather broad bar on their upper side near the top.

Localities for this species are Langwith near York, Burton-on-Trent, Manchester, the New Forest (?), and woods near London (?).

The dates of the appearance of the perfect insect are the end of May and the beginning of June, and on to July.

The caterpillar feeds inside the stems of the alder, and also, it is said, the birch.

SESIA ASILIFORMIS.

Plate VI. *Figure* 7.

This fly measures from one inch to nearly an inch and a quarter in width. Male: front wings dark blackish brown with a blue tint, inclining to be transparent toward the base. Hind wings transparent, with dark blackish brown fringes. The body, which is bluish black, has five yellow rings, the two intermediate ones very slender, the antennæ are pectinated. The head and thorax bluish black, with a yellow collar, and a stripe of the same on the side of the latter. The tail-tuft black, with two streaks of yellow lengthwise.

The body of the female has three yellow rings.

A locality for this species is Epping, but it is also said to have been taken in woods in Surrey, Kent, and Middlesex, and near London.

The date of the appearance of the perfect insect is in June.

The date of the appearance of the caterpillar is in April.

It feeds on the stems and branches of the poplar, the aspen, and, it is said, the beech.

SESIA BEMBICIFORMIS.

LUNAR HORNET SPHINX.

Plate VI. *Figure* 8.

This insect measures from one inch and not quite a quarter to one and three quarters. Male: front wings transparent; the upper edge yellowish brown; the outer edge brown. Hind wings also transparent, the fringes yellowish brown; the head dull black; the thorax the same, with a yellow collar; the body bright orange yellow, the first and second segments black, as is the hinder margin of the third and of the fourth, the remainder of the last-named dark reddish brown.

Localities for this species are Canterbury, Darenth Wood, and near Hammersmith, Cambridge, Scarborough, York, Manchester, Preston, Newcastle, Dudley, and Coventry.

The situations where it is found are osier and willow beds.

The date of the appearance of the perfect insect is in July.

The caterpillar is dull white with a brown spot on each side.

The dates of the appearance of the caterpillar are from September to May, when it turns to the chrysalis state.

It feeds on the stems and branches of the sallow.

SESIA APIFORMIS.

HORNET SPHINX.

Plate VI. *Figure* 9.

This insect measures from one inch four lines to one inch seven lines, and even more. Male: front wings transparent, the upper edge broadly margined with dull yellowish brown; the outer edge dull yellowish brown. Hind wings also transparent, rather broadly edged with yellowish brown. The head is orange yellow; the thorax brownish black, with a conspicuous spot of orange yellow on each side, with two others similarly behind them. The body is orange yellow; the first segment black; the second black, orange yellow at the base; the third black on its hinder part; the fourth dark brown; the fifth and sixth dark brown on their hinder edge.

Localities for this species are Exeter, Cambridge, Rawmarsh, Glasgow, and near Sheffield.

The dates of the appearance of the perfect insect are from the end of May to July.

The caterpillar is dull yellowish white, with a darker line along the back; the head blackish brown.

The date of the appearance of the caterpillar is from October to April, when it changes to chrysalis.

The caterpillar feeds on the wood of the poplar.

ZEUZERIDÆ.

MACROGASTER ARUNDINIS.

Plate VII. *Figure* 1.

This insect measures from about one inch and a quarter to nearly one and three quarters. Male: front wings rather light brown or yellowish brown, dotted more or less with a darker colour, and with, but sometimes without, a dark streak of the same from the base towards the tip, a little within the upper edge. Hind wings dull greyish brown. The body is singularly long and of a greyish brown colour. The female is considerably larger than the male. Hind wings dull greyish white; the body similar.

Localities for this species are Epping Forest, Whittlesea Mere, and Yaxley Fen.

The situations where it is found are reed beds, or the sides of drains where these plants grow.

The date of the appearance of the perfect insect is in June.

The caterpillar is dull yellowish, the head brown, as is the second segment.

The date of its appearance is in April.

The caterpillar feeds in the stems of the common reed (*Arundo phragmitis*).

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ZEUZERA ÆSCULI.

WOOD LEOPARD-MOTH.

Plate VII. *Figure* 2.

This plain and yet beautifully-marked fly, which derives its name from its spotted appearance, measures across from a little over two to nearly three inches. Male: front wings semi-transparent and pure white, thickly spotted over with fine clear blue-black spots with a tinge of green. Hind wings white, similarly marked, but the spots much fainter in colour. The thorax, which is also white, has six large blue-black spots, three on each side, in a row, the body ringed with bands of bluish black. The spots in the female are less bright than in the male. She is of very much larger size, the superior measurements given above belonging to her.

Localities for this species are York, Bromsgrove, Hyde Park, St. James's Park, and other parts near London, Cambridge, Exeter, Lewes, Blandford, Birmingham, etc.

The date of the appearance of the perfect insect is in July.

The caterpillar is pale yellow, with a "good few" shining black spots, slightly raised. The head has two black spots, and the first segment behind it is also black, as is likewise the tail one, so to call it.

The date of the appearance of the caterpillar is in October, and thence on, I believe, till April or May.

It feeds on the wood of a variety of trees, the elm chiefly, but also the apple, pear, lime, birch, beech, walnut, horse-chesnut, ash, and hazel.

COSSUS LIGNIPERDA.

GOAT-MOTH.

Plate VII. *Figure* 3.

This great moth measures no less than from a little under three inches to three and three quarters across. Male: front wings a mixture of rather pale and darker brown of different shades, and grey or greyish white, crossed with slender waved lines irregularly disposed; a few short lines within the upper edge, two or three slender ones near the tip, and one larger and longer one a little way within these, darker than the others. Hind wings pale ash grey, marked similarly but less distinctly with waved lines.

Localities for this species are Ely, Bromsgrove, Ivy Farm near Neatishead, Lambourne, East Garston, Bristol, Gloucester, Kimbolton, and near London, &c., &c., &c.

The dates of the appearance of the perfect insect are the end of June and beginning and middle of July.

The caterpillar is dull pale yellowish red; the back chesnut red.

The date of the appearance of the caterpillar is in September and October, but it remains sometimes as much as three years in this state before turning to chrysalis.

It feeds on the willow, poplar, and walnut.

These moths are considered to do considerable damage to trees in the places where they abound; but such damage is more imaginary than real, for the decayed wood they feed on is a symptom, only betrayed by them, of the unsoundness which is the precursor of a fall.

HEPIALIDÆ.

HEPIALUS HECTUS.

GOLD SWIFT.

Plate VII. *Figure* 4.

This insect measures from a little over an inch to nearly an inch and a quarter.

It is a very variable species.

Male: front wings dull reddish orange, with three bars of golden yellow across, two running upwards from the lower edge, and one downwards from the upper, the latter near the tip; but none of them proceed entirely across the wings, and the outer one is the shortest of the three. Hind wings sometimes spotted with golden yellow, but more commonly plain. Female: front wings rather pale greyish brown, crossed with faint darker bars of brown.

Localities for this species are, among many others throughout the country, Nunburnholme, Glasgow, &c.

The situations where it is found are open places in and near woods.

The date of the appearance of the perfect insect is in the month of June.

The caterpillar is of a greyish colour, the head yellowish.

The date of the appearance of the caterpillar is in April.

It feeds on the dandelion (*Taraxacum Dens-leonis*).

All the moths of this genus begin to fly early in the evening. They fly, on occasion, with great swiftness, from whence their common name.

HEPIALUS LUPULINUS.

COMMON SWIFT.

Plate VII. *Figure* 5.

This, which is another very variable as well as very plentiful species, measures from an inch to an inch and a half in expanse. Male: front wings pale dull fulvous brown, with a whitish streak in the middle, and another composed more or less of similar white spots extending in a sweep from the base along and within the lower edges till it reaches, or nearly reaches—differently in different individuals—a bar proceeding downwards from the tip within the outer edge. In some specimens these markings are almost obliterated. Hind wings plain brown. The female has the markings less distinct.

Localities for this species are Glasgow, and Nunburnholme, and it is seen throughout the country generally.

The situations where it is found are about grassy banks and meadows.

The dates of the appearance of the perfect insect are from the end of May to the middle and end of June.

The caterpillar is dull whitish, the head glossy brownish yellow, and a patch of the same colour on the second, third, and fourth segments.

The date of the appearance of the caterpillar is from September to April.

It feeds on the roots of a variety of plants.

HEPIALUS HUMULI.

GHOST SWIFT.

Plate VII. *Figure* 6.

This insect, which varies greatly in size, colour, and markings, measures from one and three quarters to two

inches and on to about two and three quarters across. Male: front wings glossy pure satin white, the edges yellowish brown, hind wings the same; underneath, the wings are dusky black with an edge of dull orange-red. Female: front wings dull yellow of different depths of colour, variously marked in a map-like sort of manner, but mainly, in the more distinctly marked specimens, in two transverse bars, following the outer shape of the wing, but tending to the base, and these composed of a series of patches separate or conjoined and either open or filled up, and a line of similar colour, namely deep dull red or greenish brown, a little within the upper edge. Hind wings dull orange-brown, or dusky reddish margined with a thin border of orange red, dusky at the base.

Localities for this species are York, Nunburnholme, Ordsall, Charmouth, Nafferton, Driffield, Bisterne, Southport, Faversham, Manchester, Falmouth, &c. &c., throughout the country at large most abundantly.

The situations where it is found are open fields and meadows, gardens occasionally, churchyards, road-sides, and lanes.

The date of the appearance of the perfect insect is in June.

The caterpillar is dull yellowish white, the head reddish brown, the second segment with a patch of reddish brown on its upper part.

The date of the appearance of the caterpillar is in August, and thence to April.

The caterpillar feeds on the roots of the hop (*Humulus lupulus*), nettle (*Urtica urens*), and burdock (*Arctium lappa*).

This is the moth which forms so conspicuous an object in the still and tranquil summer evenings, hovering like

a hawk, or rather oscillating, that is to say the male insect, over the same spot; and derives its name either from its ghost-like appearance, or from its being seen in churchyards, thus suspended in the air over the graves. At times they keep swarming about trees even up to the top, buzzing around them in a somewhat similar manner.

HEPIALUS SYLVINUS.

ORANGE SWIFT.

Plate VIII. *Figure* 1.

This insect measures from under an inch and a quarter to above one and three quarters in expanse. It is very variable in its markings. Male: front wings rich dull orange, with indistinct markings of a deeper shade, and a pale slanting and irregular streak running from near the base to the middle of the lower margin, from which another, also irregular, goes up nearly to the tip; the upper edge is spotted with brown. Hind wings dusky, tinged faintly with orange at the outer edge. Female: front wings dull cinnamon colour. Hind wings dusky.

Localities for this species are Lewisham, Durham, Falmouth, the Isle of Wight, Worcester, Manchester, Huddersfield, York, Scarborough, Darlington, Birch Wood Kent, Blandford, Edinburgh, Stowmarket, Birmingham, Bristol, Lymington, Hertford, and near London, &c., &c.

The situations where it is found are grassy lanes and banks.

The dates of the appearance of the perfect insect are in July and August.

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HEPIALUS VELLEDA.

BEAUTIFUL SWIFT.

Plate VIII. *Figure* 2.

This insect measures from a little under an inch and a quarter to an inch and three quarters, or even two and upwards according to Mr. Westwood, in width. Male: front wings pale reddish or greyish brown, with a rather large greyish white patch near the base, and a semi-circular line of the same outside and between it, and another light streak which runs from near the middle of the lower edge to the upper edge, in a line with the outer margin. In some specimens the pale marks are obliterated. Hind wings dusky, with a narrow dull orange border along the lower and outer edge. Female: front wings less distinctly marked. Hind wings dusky.

Localities for this species are Edinburgh, Inverary, Kilmun, Argyleshire, Perth, Arran, Torwood, Stirling, Killarney, Scarborough, Manchester, Burton-on-Trent, Darlington, Sevenoaks, Worcester, Beverley, Darenth Wood Kent, &c., &c.

The dates of the appearance of the perfect insect are June and July.

The caterpillar feeds on the roots of the common fern (*Pteris aquilina*).

This is a local species, but abundant where it occurs.

COCHLIOPIDÆ.

LIMACODES ASELLUS.

Plate VIII. *Figure* 3.

This insect measures from a little under to a little over three quarters of an inch in width. Male: front wings glossy yellowish, with a tinge of brown. Hind wings dull dusky brown.

Localities for this species are the New Forest near Lymington, Epping Forest, Marlow, and Worthing.

The dates of the appearance of the perfect insect are the end of June and in July.

The caterpillar, which is short and wide, is described as of a greenish colour, with a broad yellow streak along the back, and verging to reddish on the side.

The date of the appearance of the caterpillar is from August to October.

The caterpillar feeds on the poplar, and also, it is said, on the oak and the beech.

LIMACODES TESTUDO.

Plate VIII. *Figure* 4.

This insect measures from a little under an inch to about an inch and a quarter in width. Male: front wings dull yellowish, crossed by two slender dark lines, widened out below by the inner one turning towards the base, the

enclosed space being usually somewhat darker than the remainder of the wing. Hind wings dull dusky brown, inclining to yellowish at the lower corner.

Localities for this species are Blean Wood near Canterbury, Shooter's Hill, Worcester, Brighton, and Worthing; to which Mr. Stainton adds West Wickham Wood.

The date of the appearance of the perfect insect is in June.

The caterpillar, which is short and thick, is green, with two lines of dull white edged with yellowish red along the back, and a yellow streak on the sides.

The date of the appearance of the caterpillar is in September and October.

The caterpillar feeds on the oak and the beech.

This insect flies in the day-time.

PROCRIDÆ.

INO STATICES.

FORESTER.

Plate VIII. *Figure* 5.

This insect measures from one inch to a little over an inch across. Male; front wings deep bronze green, in some lights bluish green, and slightly transparent. Hind wings dusky and semi-transparent, but harmonising with the colour of the front wings.

The antennæ are blunt at the tip, and blackish in colour; the head black. The female measures from not

quite an inch to an inch in width. I have one in my cabinet only a little over three quarters of an inch wide.

Localities for this species are Bromsgrove, York, Huddersfield, Cambridge, Oxford, Lewes, Brighton, Bristol, Leicester, Peterborough, Box Hill, Durham, Tonbridge, Weston-super-Mare, Hammersmith, Knutsford, Birmingham, West Wickham Wood, and Linwood near Market Rasen.

The situations where it is found are moist meadows and grounds, for the most part near woods.

The dates of the appearance of the perfect insect are from the beginning of June to the end of July.

The caterpillar is greyish ash-colour, with a double row of black dots arranged triangularly along the back, and a reddish stripe along the sides, above which is a narrow whitish one.

The date of the appearance of the caterpillar is from May to June.

The caterpillar feeds on the sorrel (*Rumex acetosella*), the thrift (*Statice armeria*), and the bitter cress (*Cardamine pratensis*).

This is a very local species, but sufficiently common where it is met with. One is always glad to meet with it. It is a slow flier, and is on the wing in the day-time.

INO GLOBULARIÆ.

Plate VIII. *Figure* 6.

This insect measures from an inch or a little over to nearly an inch and a quarter in width. Male: front wings deep bronze green, in some lights with a tinge of blue, and slightly transparent. Hind wings dusky and

semi-transparent, but harmonising with the green of the front wings.

The antennæ are pointed at the tip.

Localities for this species are Hollingbury Hill near Brighton, Cliffe Hill near Lewes, and also near Cheltenham.

The situations where it is found are grassy places.

The dates of the appearance of the perfect insect are from the middle of June to the middle of July;—June 14—15, as communicated by Mr. Unwin, of Lewes, to Mr. Stainton.

The caterpillar is of a blackish colour, with a double row of green spots arranged in a triangular manner along the back, and a blue stripe on each side, within which is a row of yellow dots.

The date of the appearance of the caterpillar is in May and to June.

This moth flies in the day-time.

ZYGÆNIDÆ.

ANTHROCERA MINOS.

Plate VIII. *Figure* 7.

This insect measures from a little over an inch to an inch and a quarter in expanse. Male: front wings dull bluish green, but nearly supplanted by crimson-red, hollowed towards the outer part. Hind wings crimson-red, with a very narrow purple edge.

Localities for this species are Ardrahan in the county

of Galway, and likewise in the county of Clare, also near Oban in Argyleshire.

The situations where it is found are barren places in mountainous districts.

The date of the appearance of the perfect insect is from the middle to the end of June.

The caterpillar is pale yellowish green, with a double row of twelve black spots on the sides.

The date of the appearance of the caterpillar is in May and to June.

The caterpillar feeds on the bird's-foot trefoil (*Lotus corniculatus*), the mountain trefoil (*Trifolium montanum*), and the horse-shoe vetch (*Hippocrepis comosa*).

This species flies in the day-time.

ANTHROCERA TRIFOLII.

FIVE-SPOTTED BURNET.

Plate VIII. *Figure* 8.

This insect measures from one inch and a little under a quarter to one and a little over. Male: front wings deep bluish green, with five deep crimson-red spots,—two, two, and one,—the two next the body running into one another, and the two next also frequently united. Hind wings deep crimson-red, with a rather broad purple edge.

The antennæ are black, rather short and thick, considerably so towards the tip. The body is also blue-black.

Localities for this species are Axminster, Lynn, Bideford, Bisterne, Keymer, Dorchester, Lewes, Oxford, Lower Guiting, Manchester, and Holywell in Flintshire, Budock and College Wood near Falmouth, &c., &c.

The situations where it is found are meadows, open places in woods, and grassy cliffs.

The dates of the appearance of the perfect insect are in June and July.

The caterpillar is yellowish green, with two rows of black spots along the back, and another of the same on the sides.

The date of the appearance of the caterpillar is the month of May.

The caterpillar feeds on the bird's-foot trefoil (*Lotus corniculatus*), hop trefoil (*Trifolium procumbens*), and the horse-shoe vetch (*Hippocrepis comosa*).

This species, like the former, flies in the day-time.

ANTHROCERA LONICERÆ.

Plate VIII. *Figure* 9.

This insect measures from a little over an inch to more than one inch and a quarter across. Male: front wings deep bluish green with five deep crimson-red spots,—two, two, and one,—the pair next the body nearly united. Hind wings crimson-red.

The antennæ rather long and slender, but somewhat thickened towards the tip.

Localities for this species are Wenlock, Dorking, Worcester, Barnstaple, Knutsford, the Isle of Wight, Scarborough, York, Huddersfield, Blandford, Dorchester, &c., &c.

The situations where it is found are meadows and other open grassy places.

The date of the appearance of the perfect insect is in July.

The caterpillar is dull green, with two black stripes on each side, and a yellow spot on each segment between them.

The date of the appearance of the caterpillar is in May.

The caterpillar feeds on the bird's-foot trefoil (*Lotus corniculatus*), and the horse-shoe vetch (*Hippocrepis comosa*).

This species also flies in the day-time.

ANTHROCERA FILIPENDULÆ.

SIX-SPOTTED BURNET.

Plate VIII. *Figure* 10.

This insect measures from about an inch to rather over an inch and a quarter across. Male: front wings deep greenish blue with six spots of deep crimson-red,—two, two, and two,—the pair next the body are confluent, as are also sometimes the next, and the two outer ones. Hind wings deep crimson-red with a narrow purple edge.

Localities for this species are Peterborough, Sudbury, Durham, Wenlock, the Isle of Wight, Bisterne, Southport, Keymer, Faversham, Budock and College Wood near Falmouth, York, Perth, and Kilmun in Argyleshire, &c., &c.

The situations where it is found are meadows and other open grassy places.

The dates of the appearance of the perfect insect are in June and July.

The caterpillar is yellowish, with two rows of black spots along the sides.

The date of the appearance of the caterpillar is from May to June.

The caterpillar feeds on the common rest-harrow (*Ononis arvensis*).

This species flies in the day-time.

NOLIDÆ.

NOLA CUCULLATELLA.

SHORT-CLOAKED.

Plate VIII. *Figure* 11.

This insect measures from three quarters of an inch to a little over in width. Male: front wings deep bluish grey at the base, the remainder pale bluish or whitish grey; the first line black and straight nearly all the way across, the second line grey and rather faintly traced. Hind wings pale grey.

Localities for this species are Falmouth, York, Darlington, Manchester, Brighton, Stowmarket, &c., &c.

The situations where it is found are, when at rest, on palings and the trunks of trees.

The dates of the appearance of the perfect insect are June and July.

The caterpillar is of a reddish brown colour, with a broad white stripe with bluish streaks along the back.

The date of the appearance of the caterpillar is in May.

The caterpillar feeds on the hawthorn and the sloe.

NOLA CRISTULALIS.

LEAST BLACK ARCHES.

Plate VIII. *Figure* 12.

This insect measures three quarters of an inch or a little over in expanse. Male: front wings whitish on

the upper and greyish white on the lower part, the first line black and bent near the upper edge of the wing, the second line, within which is a grey band, black and indented. Hind wings greyish white.

Localities for this species are West Wickham, Black Park, Preston, York, Cambridge, Guildford, and Lewes, &c., &c.

The dates of the appearance of the perfect insect are the end of May and in June.

The caterpillar is dull yellowish white, inclining to reddish on the sides, with a black line on each side, and three of the same colour along the back.

The date of the appearance of the caterpillar is in the month of May.

The caterpillar feeds on the oak.

NOLA STRIGULA.

Plate VIII. *Figure* 13.

This insect measures a little over three quarters of an inch across. Male: front wings greyish white, the first line blackish and waved, the second line also blackish and waved, the third line whitish and faintly marked. Hind wings rather dark grey.

Localities for this species are Darenth Wood, Preston, Killarney, Black Park Buckinghamshire, Scarborough, Tenterden, Brighton, &c., &c.

The dates of the appearance of the perfect insect are June and July.

The caterpillar is pale dull yellowish, with a blackish patch on the eighth segment, the head dark brown.

The date of the appearance of the caterpillar is in May and June.

The caterpillar feeds on the oak.

NOLA CENTONALIS.

Plate VIII. *Figure* 14.

This insect measures about three quarters of an inch across. Male: front wings greyish or pearl white, with a yellowish pink tinge at the base, and two bands of the same outward towards the tip; near the base they are crossed by two short bars not reaching to either edge, the innermost of them running into it; the third line reaches nearly across the wing from the front edge, widening out below towards the lower edge, and followed by another smaller and slenderer one between it and the outside edge. Hind wings grey, darker near the base and along the upper edge.

One locality for this species is Bembridge, in the Isle of Wight, where a specimen was taken in the year 1858. Three others were taken by Dr. W. H. Allchin.

The dates of the appearance of the perfect insect are the end of June and the beginning of July. July 1, July 15.

This species appears to fly in the sunshine.

NUDARIA SENEX.

ROUND-WINGED MUSLIN.

Plate IX. *Figure* 1.

This insect measures from a little over three quarters of an inch to nearly an inch in expanse. Male: front wings, inclining to transparent, dull yellowish, with a black spot beyond the middle near the upper edge, three black dots near the base in a slanting direction, and a

rather indistinct row of black dots towards the outer edge. Hind wings with an indistinct black spot near the upper edge.

Localities for this species are Hammersmith Marshes, Battersea Fields, York, Stowmarket, Epping, Whittlesea-Mere, Cambridge, Tenterden, Fairbrook Alders near Faversham, &c.

The situations where it is found are marshy places.

The dates of the appearance of the perfect insect are the end of July and in August.

NUDARIA MUNDANA.

Plate IX. *Figure* 2.

This insect measures from about three quarters of an inch to nearly an inch in expanse. Male: front wings transparent, pale dull brownish yellow, with two distinct waved lines or narrow bands across, and a black spot in the middle between the two near the upper edge, and an indistinct dark wave within the outer edge. Hind wings similar, but without any spots or markings.

Localities for this species are Lewisham, Lewes, Linton, Devon, Malvern, Peterborough, Sudbury, the Isle of Man, &c., &c.

The dates of the appearance of the perfect insect are in June and July.

The caterpillar is dull bluish grey, with a yellow streak along the back; the head is black, of which colour there is also a spot on the eighth segment.

The date of the appearance of the caterpillar is at the end of May and in the beginning of June.

The caterpillar feeds on lichens.

From nature on stone by J. Buckler.

Vincent Brooks Day & Son, Imp.

SETINA IRRORELLA.

Plate IX. *Figure* 3.

This insect measures from about three quarters of an inch to an inch and a quarter or over in width. Male: front wings dull yellow, with three slanting rows of small black dots, variable in number, in the place of the first, second, and third lines. Hind wings similar in colour, but paler, and with one or two blackish spots near the outer corner.

Localities for this species are Galway, Oban, Dover, Southsea, Box Hill, Newhaven, Shoreham, Worthing, Brighton, Isle of Man, &c.

The dates of the appearance of the perfect insect are in June and July.

The caterpillar is black, with a yellow line along the back, composed of a series of angulated spots, and with elongated spots on the sides.

The date of the appearance of the caterpillar is in May.

The caterpillar feeds on lichens.

A curious variety of this species was taken by the Rev. Professor Henslow, the dots being suffused into two straight lines, and one between them in the shape of a V.

CALLIGENIA MINIATA.

RED ARCHES.

Plate IX. *Figure* 4.

This very pretty insect measures from a little under to a little over an inch in width. Male: front wings

fine salmon-red, crossed by a narrow waved black line, which is followed by a row of black dots. Hind wings pale salmon-red.

Localities for this species are Crompton's Coppice near York, Sandal Beat near Doncaster, Scarborough, Worthing, Blandford, Lewes, Epping, Plymouth, Selling, and Blean Wood near Canterbury, Perry Wood near Faversham, Sevenoaks, Henfield, Dorking, Ipswich, &c.

The situations where it is found are woods, chiefly of young growth.

The date of the appearance of the perfect insect is in July.

The caterpillar is dull greyish brown, covered with long greyish black hairs; the head reddish brown, orange-yellow in front.

The date of the appearance of the caterpillar is in May and June.

The caterpillar feeds on lichens, and the oak, beech, and birch.

This is a local species, but not very rare. It is best taken by shaking the trees in which it rests in the day-time.

LITHOSIA MESOMELLA.

Plate IX. *Figure* 5.

This insect measures from under an inch to nearly an inch and a quarter in expanse. Male: front wings dull but glossy whitish, with a black dot on the upper edge beyond the middle, and another nearly opposite to it near the lower edge; the upper edge and the outer edge yellowish orange. Hind wings greyish dusky, paler towards the base, the fringe yellowish orange; sometimes running up more or less in a streak into the wing.

Localities for this species are Faversham, Bisterne, Black Park, Carlisle, York, Cambridge, Epping, Exeter, Lewes, Lymington, Blandford, Brighton, and near London, &c., &c.

The situations where it is found are heaths and commons, and such places in woods.

The perfect insect appears in June and July.

The caterpillar is greyish, with a blackish stripe on each side of the back; the head reddish.

The date of the appearance of the caterpillar is in May.

It feeds on lichens.

LITHOSIA MUSCERDA.

Plate IX. *Figure* 6.

This insect measures from an inch to an inch and nearly a quarter. Male: fore wings pale brownish-grey, the upper edge paler towards the base in some specimens, two black dots near the middle of the lower edge, and four black dots from the middle of the upper edge towards the outer corner.

Localities for this species are Horning Marshes, near Norwich.

The perfect insect appears about the end of June and through July to August.

LITHOSIA AUREOLA.

Plate IX. *Figure* 7.

This insect measures from an inch to a little less than an inch and a quarter in expanse. Male: fore wings

deep dull but rich ochreous-yellow. Hind wings of a similar colour but paler.

Localities for this are Black Park, Leatherhead, Epping, Darenth Wood, Halton, Tonbridge, Horndean, Sudbury, Worcester, Bingley Wood near Oxford, Lewes, and Brighton.

The perfect insect appears in June and July.

The caterpillar is black, with two interrupted stripes of a yellow colour, spotted with red along the back; which is dotted with white behind the head, on the middle, and near the tail.

The date of the appearance of the caterpillar is from May to June.

It feeds on the lichens which grow on the fir and the pine.

LITHOSIA PYGMÆOLA.

Plate IX. *Figure* 8.

This insect measures from a little under an inch to an inch in extent of width. Male: fore wings pale greyish-yellow, yellowish along the upper margin. Hind wings pale yellow, dark grey towards the upper margin.

Localities for this species are on the coast near Deal.

The perfect insect appears in August.

LITHOSIA HELVEOLA.

Plate IX. *Figure* 9.

This insect measures from a little over an inch to one and a quarter in width. Male: fore wings dull bluish-grey, buff-yellow at the base, the upper margin broadly

bordered with the latter colour tapering outwards, as also the outer margin, but narrowly. Hind wings greyish-buff.

Localities for this species are York, Box Hill, Black Park, Worcester, Brockenhurst, Lymington, and Norbury Park, Surrey.

The perfect insect appears in July.

The caterpillar is black, with a streak of yellow on each side of the back, broader and nearly meeting behind, where they almost form a spot; the head blackish-brown.

The date of the appearance of the caterpillar is at the end of May or beginning of June.

It feeds on the lichens of the oak and the beech.

LITHOSIA COMPLANULA.

THE COMMON FOOTMAN.

Plate IX. *Figure* 10.

This insect measures an inch and a quarter or a little over across. Male: fore wings rather deep bluish-grey, with a streak of buff-yellow along the upper margin, gradually lessening in width from a little beyond the middle to near the tip. Hind wings pale buff-yellow.

Localities for this species are Bisterne, Barnstaple, Poynings, Charmouth, West Rasen, Nafferton, Nunburnholme, &c., &c. It is common throughout the country.

The situations where it is found are gardens, lanes, and the sides of woods.

The perfect insect appears in July.

The caterpillar is black, with two reddish stripes along the back.

The date of the appearance of the caterpillar is in May and June.

It feeds on lichens attached to walls and poplars.

LITHOSIA COMPLANA.

Plate IX. *Figure* 11.

This insect measures an inch and a quarter, or a little over, in expanse. Male: fore wings pale bluish-grey, with a stripe of buff-yellow of equal width along the upper margin.

Localities for this species are Black Park, Deal, Dover, Lewes, Worthing, Bisterne, Shrewsbury, Chat-Moss, Manchester, Bristol, Plymouth, Epping, and Stowmarket, College Wood, and Pennance near Falmouth, &c., &c.

The perfect insect appears in July.

The caterpillar is black, covered with short hairs. There is a spotted stripe of yellow, red, and white, on each side of the back, and another narrow one of reddish yellow above the feet.

The date of the appearance of the caterpillar is in May and June.

It feeds on the lichens which grow on the sloe or wild plum, and the fir.

LITHOSIA GRISEOLA.

Plate IX. *Figure* 12.

This insect measures from about an inch and a quarter or a little over, to nearly an inch and a half across. Male: fore wings pale grey inclining to buff, and of a glossy appearance; the upper margin narrowly marked with yellowish. Hind wings yellowish grey.

Localities for this species are Scarborough, Bisterne, Kingsbury, Dorking, Halton, Bognor, Ripley, Wavendon,

Hertford, Brighton, Lympstone, Epping, Cambridge, Bristol, Birkenhead, Exeter.

The perfect insect appears in the month of Augutt—August 13.

LITHOSIA STRAMINEOLA.

Plate IX. *Figure* 13.

This insect measures from an inch and a quarter to nearly an inch and a half in extent. Male: fore wings dull yellowish buff. Hind wings of a similar colour, but paler.

Localities for this species are Lewes, Bisterne, Halton, Lympstone, Cambridge, Epping, and Bristol.

The perfect insect appears in the month of August.

LITHOSIA QUADRA.

LARGE FOOTMAN. FOUR-SPOTTED FOOTMAN.

Plate IX. *Figure* 14.

This insect measures from one inch and three quarters to nearly two inches in expanse. Male: fore wings dull but clear grey, much darker within the outer margin, deep orange yellow at the base, and with a black patch on the upper margin. Hind wings pale orange-yellow, deeper on the inner margin, and grey along the upper.

Female: fore wings fine orange or buff-yellow, with two distinct black spots, the lower one near, and the other a little beyond the middle. Hind wings similar in colour, but paler.

Localities for this species are Scarborough, Black Park, Wavendon, Dover, Manchester, the New Forest, Epping, Ramsgate, Halton, Lymington, Dorchester, Bristol, &c.

The perfect insect appears in July.

The caterpillar is blackish grey, with a double indented line of yellow, spotted with scarlet along each side of the back, and a black spot on the second, seventh, and last segments.

The date of the appearance of the caterpillar is from May to June.

It feeds on the lichens which appertain to the oak, the beech, and other trees.

LITHOSIA RUBRICOLLIS.

Plate X. *Figure* 1.

This insect measures from a little over an inch, to rather more than an inch and a quarter in width. Male: fore wings dull black. Hind wings also dull black. The tail is yellow; the thorax has a belt of orange yellow over it in front.

Localities for this species are York, Londesborough, Guisborough, Swinhope, Cambridge, Canterbury, Dursley, Brighton, West Wickham, Blandford, Wavendon, Black Park, Epping, Exeter, Lewes, Box Hill, Bisterne, Barnstaple, Gloucester, Peterborough, Stowe Wood, Halton, Lymington, Manchester, Thornhill, Dumfries, Dorking, Carlisle, Lower Guiting, Plymouth, Stowmarket, Winchester, Worthing, Lympstone.

The situations where it is found are fir plantations.

The perfect insect appears in June.

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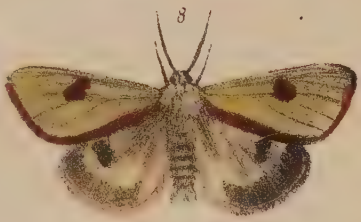

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The caterpillar is greenish-grey, with black stripes spotted with white and red; the head is dark brown with two white lines.

The date of the appearance of the caterpillar is in August and September.

It feeds on lichens of different sorts.

This species flies in the sunshine about the tops of the trees mentioned above, but is also to be taken perched on blades of grass.

EULEPIA GRAMMICA.

Plate X. *Figure* 2.

This insect measures from an inch and a third to nearly an inch and a half in width. Male: fore wings yellowish-buff with a tinge of green rayed with black, and with a spot of the same a little beyond and above the middle. Hind wings yellowish tinged with orange, and with a rather broad border composed of a series of oblong spots, more or less run together in different specimens, and a crescent shaped spot near the centre.

Localities for this species are Windsor and Anglesea.

The perfect insect is said variously to appear in June and July, in September and October.

The caterpillar is dark blackish-brown, with a yellowish-orange streak along the back, a white line on each side, and reddish spots, each the base of a tuft of hairs.

The date of the appearance of the caterpillar is in May.

It feeds on the fescue-grass *(Festuca duriuscula)*, heath *(Calluna vulgaris)*, the hawkweed *(Hieracium pilosella)*, mugwort *(Artemisia vulgaris)*, field southernwood *(Artemisia campestris)*, and other plants.

EULEPIA CRIBRUM.

Plate X. *Figure* 3.

This insect measures about an inch and a third, or a little over in width. Male: fore wings greyish white with four waved bands of dull black, composed of a series of nearly united spots or billets crossed by two lines or streaks, and with several black dots on the outer margin. Hind wings grey, the margins darker.

Localities for this species are Bisterne, Parley Heath, the New Forest, Ringwood, and near Blandford.

The situations where it is found are heaths and heathy commons.

The perfect insect appears in the month of July.

The caterpillar is black, with short hairs of the same, a white line along the back.

The date of the appearance of the caterpillar is in August and May.

It feeds on the heath (*Calluna vulgaris*).

EUCHELIDÆ.

DEIOPEIA PULCHELLA.

Plate X. *Figure* 4.

This insect measures from a little under an inch and a half, to one and three quarters across. Male: fore wings white, or very pale cream-white, spotted with five or six irregularly disposed waved lines of crimson and

black spots, of which there is a row within the outer margin, followed by another indistinct series of the same. Hind wings clear white, semi-transparent, with a broad deeply indented border of dull black. The thorax is cream white dotted with black.

Localities for this species are Christ Church, Stowmarket, Worthing, Brighton, Manchester, Epping, and I believe Glanville's Wootton, and the Isle of Wight. It is an extremely rare species in this country, and as beautiful as it is rare.

The perfect insect appears in September and on to October.

The caterpillar is bluish-grey, with black hair, a wide stripe of white along the back, and a red band interrupted in a dotted manner in the middle on each segment with black spots.

It feeds on the field mouse-ear (*Myosotis arvensis*), and the marvel of Peru.

EUCHELIA JACOBEÆ.

CINNABAR.

Plate X. *Figure* 5.

This insect measures from about an inch and a half to nearly one and three quarters in expanse. Male: front wings dull black with a narrow stripe of scarlet-red along, but a little within, the upper margin, and two spots of the same on the outer margin. Hind wings scarlet-red with a margin of dull black.

Localities for this species, which is decidedly local,—the plant it is addicted to is to be seen everywhere, but not so the insect which affects it,—are Waterford, Queenstown, Sutton-on-Derwent, West Wickham, Dorking,

Black Park, Maidstone, Barnstaple, Birmingham, Lynn, Sheffield, Southport, Blackpool, Durham, Carlisle, Charlton, Fife, Perth, York, Falmouth, and many others.

The perfect insect appears in May and June.

The caterpillar is dull golden yellow with black rings, each colour alternating, the head black; it is sprinkled over with short hairs.

The date of the appearance of the caterpillar is in July and from that to August.

It feeds on the ragwort (*Senecio Jacobæa.*) They generally are found in companies, and several often on the same plant, which may be seen quite eaten bare by them.

This moth flies in the day-time, but slowly and languidly.

CALIMORPHA DOMINULA.

SCARLET TIGER.

Plate X. *Figure* 6.

This insect measures from a little over two inches to two inches and a quarter, or more, in expanse. Male: fore wings very deep bronzed green, with large cream yellow and white spots. Hind wings fine scarlet or crimson, spotted with two large black patches running into the lower margin, and a smaller one issuing downward from the upper margin. The thorax is black, with two orange coloured stripes.

Localities for this species are Burwell Fen, Arundel, Blandford, Dover, Exeter, Bisterne, Halton, Plymouth, Ashburton, Winchester, Bristol.

The perfect insect appears the latter end of June. I have taken it in the middle of July.

The caterpillar is black, and covered with short hairs, with a broad stripe of pale yellow along the back, and another interrupted one on each side.

The caterpillar is found in August, and thence to May.

It feeds on the nettle, the willow, the ash, &c.

This species is subject to considerable variety, not only as to size, but also in the markings and the ground colour of the hind wings. In some specimens the red is almost wholly superseded.

CALIMORPHA HERA.

Plate X. *Figure* 7.

This insect measures from three inches and a half to three inches and three quarters in expanse.

Male: fore wings very dark deep green, curiously streaked and marked with cream-white, viz. a narrow line along the lower margin from the inner corner, from which also a short slender curved streak proceeds. Two large ones descend from the upper margin, with two very short marks between them respectively, the outer of the two former ones forming an angular junction with another which follows within the outer margin and the upper part, but meets the edge of the lower, skirted with a row of small spots. Hind wings full rich scarlet red, with two large patches and with two small dots, forming part of a supposititious line or band within the outer margin, and a large spot of the same above the centre.

Localities for this species are Newhaven in Sussex, where one was captured by a little girl near the end of the main street; Brighton, where one was seen by Mr. Cook, of that town; and Wrexham, from whence a

specimen, captured in August, 1859, is now in the cabinet of the British Museum. Also, different places in Guernsey. Specimens have been recorded as having been taken in several instances in England, previously to those mentioned above. I saw the species placed as British in the cabinet of J. C. Dale, Esq., of Glanville's Wootton, many years ago.

The situations where it is found are open barren places.

The caterpillar is of a light brown colour, and covered with fine hairs.

The caterpillar lives through the winter.

It feeds on the burrage (*Borago officinalis*), and will also eat the dandelion (*Taraxicum dens-leonis*).

I refer my readers to THE NATURALIST for the year 1856, where I have fully established the claim of this splendid insect to be a British species, as a native of Guernsey, from whence I have had the larvæ. Every Botanist and Conchologist of the present day admits the plants and shells of the Channel Islands to be British without doubt: no one of any eminence now disputes the fact.

CHELONIDÆ.

EUTHEMONIA RUSSULA.

THE CLOUDED BUFF.

Plate X. *Figure* 8.

THIS insect measures from one inch and a half to a little over one inch and three quarters in width. Male: fore wings pale rather dull buff-yellow, the margin reddish. There is a conspicuous black spot edged with reddish near but a little above the centre. Hind wings

pale buff-white, the outer margin reddish, within it a broad border of black veined through with the former colour.

Female: fore wings deep rusty orange, with reddish orange veins. Hind wings deep rusty orange.

Localities for this species are York, Brighton, Lymington, Preston, Worthing, Linwood near Market Rasen, Coombehurst, Black Park, Selling, Blandford, Scarborough, Chilham, Bisterne, Isle of Wight, Peterborough, Arran, Stowmarket, Dorchester, Perth, Kilmun, Killarney, Chat-Moss, Birmingham, Halton, Teignmouth, Haldon, Exeter, Carlisle, Plymouth, Epping, Lewes, Leicester, Pennance, and Budock near Falmouth.

The situations where it is found are open heaths.

The perfect insect appears the latter end of June and in July.

The caterpillar is blackish brown, covered with reddish hairs, with a yellow line spotted with red along the back.

The caterpillar is to be found in September, and again in May.

It feeds on the plantain (*Plantago lanceolata*), the dandelion (*Taraxicum dens-leonis*), the scabious (*Scabiosa succisa*), &c.

CHELONIA PLANTAGINIS.

WOOD TIGER.

Plate X. *Figure* 9.

This insect measures from a little under to a little over an inch and a half or more in width. Male: fore wings black, with cream-white streaks, and spots edged with dull yellow, one long one from the inner corner along but within the lower margin, a short cross one

near the outer corner, and a long one within it. Hind wings dull orange-yellow, from the inner corner two black streaks, the upper one bent upwards to the margin, and the outer margin with black spots, one on and the other within it, and an edge of the same along the upper part of the outer margin, and also at the lower corners. The thorax is black, striped with buff, the body brown-black, with buff on the sides.

Female: fore wings with less black than the male, but otherwise similarly marked. Hind wings with the space between the streaks from the inner corner filled up with black. The female is rather smaller than the male.

Localities for this species are Sandal Beat near Doncaster, Melbourne near Pocklington, York, Manchester, Falmouth, West Wickham, Worthing, Winchester, Brighton, Blean Wood near Canterbury, Black Park, Scarborough, Lower Guiting, Dovedale, Worcester, Birmingham, Stow Wood, Bromsgrove, Newmarket, Sudbury, Halton, Dursley, Peterborough, Mansfield, Gloucester, Durham, Chat-Moss, Preston, Huddersfield, Lewes, Perth, Teignmouth, Castle Eden, Carlisle, and the Pentland Hills.

The situations where it is found are open places in and adjoining woods.

The perfect insect appears at the end of May, and the beginning of June.

The caterpillar is dull brown, with long black hairs on the second, third, fourth, eleventh, twelfth, and thirteenth segments, and reddish-brown on the alternate ones.

The caterpillar is to be looked for in May, living on through the winter, to the month of September.

It feeds on the plantain (*Plantago lanceolata*).

This species is subject to considerable variety, both in colour and markings.

CHELONIA CAGA.

COMMON TIGER. LARGE TIGER. GARDEN TIGER.

Plate XI. *Figure* 1.

This insect measures from a little over two to three inches in expanse. Male: fore wings very rich chocolate-red brown, with cream-white markings meandering through it, but very variable in extent, the brown in some superseding the white more or less. Hind wings deep red, with more or less of a tinge of orange, and with from four to six spots of rich purple-black, three of them in a row within the outer margin, and the others or other (for they are sometimes confluent) between them and the inner corner; a narrow bar, again, frequently interposes between them from the upper margin.

Localities for this species, which is abundantly distributed through the country, are York, Nafferton, Charmouth, Worcester, Nunburnholme, Edinburgh, Falmouth, &c., &c.

The situation where it is found are gardens, lanes, and a variety of others.

The perfect insect appears in July.

The caterpillar is black, with rather long silky whitish hairs on the back, and reddish brown ones on the sides, the head black, as are also the legs.

The caterpillar lives through the winter, from October to the end of May or beginning of June.

It feeds on the nettle (*Urtica urens*), and other plants, the lettuce, strawberry, &c.

Several very remarkable varieties of this species have been captured.

CHELONIA VILIEA.

CREAM-SPOTTED TIGER.

Plate XI. *Figure* 2.

This fine insect measures from a little over two inches to nearly two and a half inches in expanse. Male: fore wings very deep rich velvet-black, with generally about eight conspicuous cream-white or yellowish-white spots. Hind wings rich orange-yellow, with four, or five, or six black spots, and an irregular black patch or mass of spots at the lower corner. The body is rich orange colour on the upper part, spotted with a row of black dots, and more or less red towards the end. The head velvet-black; the thorax velvet-black, with a cream-white spot on each side near the front.

Localities for this species are Falmouth, Blandford, Bristol, Exeter, Lewes, Plymouth, Epping, Charmouth, Blean Wood near Canterbury, at both of which places I have taken it; Faversham, Emsworth, Barnstaple, Bisterne, Kingsbury, Lymington, West Wickham, West Looe, Brighton, Teignmouth, Worthing, Truro, Tenterden, &c., &c.

The situations where it is found are lanes, hedge-sides, and open places in woods.

The perfect insect appears in June.

The caterpillar is black, with brown hair all over it. Head dull red; legs the same.

The caterpillar is found in September, and lives through the winter till May.

It feeds on the ragwort (*Senecio Jacobæa*), chick-weed (*Cerasteum vulgatum*), and a variety of other plants.

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ARCTIA FULIGINOSA.

RUBY TIGER.

Plate XI. *Figure* 3.

This insect measures from about one inch to nearly one inch and a half in width. Male: fore wings deep brownish red, with a black spot beyond the middle. Hind wings purple-red, with two black central spots, a broad dusky margin, the fringe red.

Localities for this species are York, Charmouth, Bisterne, Barnstaple, Peterborough, Manchester, Sheffield, Leeds, Falmouth, Dunoon, Thornhill in Dumfriesshire, Perth, &c.

The situations where it is found are waste places, grassy cliffs, by the sea side, &c.

The perfect insect appears in June and July.

The caterpillar is dusky yellowish-brown, with brown hairs.

The date of the appearance of the caterpillar is in April, having lived through the winter from October.

It feeds on the nettle (*Urtica urens*), the dock (*Rumex pratensis*), the plantain (*Plantago lanceolata*), &c.

ARCTIA MENDICA.

MUSLIN MOTH.

Plate XI. *Figure* 4.

This insect measures from one inch and a quarter to rather over one inch and a half in expanse.

Male: fore wings greyish dusky-black. Hind wings greyish dusky-black.

Female: fore wings semi-transparent and white, with eight, nine, or ten black spots irregularly disposed. Hind wings white and semi-transparent, and with five or six black spots.

Localities for this species are Sandal Beat near Doncaster, Morton and Langwith near York, Huddersfield, Scarborough, Chilham, Manchester, Exeter, Epping, Halton, Winchester, Stowmarket, Bristol, Sudbury, Cambridge, Plymouth, Lower Guiting, Teignmouth, Birkenhead, Tenterden, Lewes, Lymington, Darlington, Shrewsbury.

The situations where it is found are open places in woods.

The perfect insect appears in May and June.

The caterpillar is greyish or greenish-brown, with a line along the back of a pale shade, the head reddish, the legs reddish.

The date of the appearance of the caterpillar is in July, August, and September.

The caterpillar feeds on the nettle (*Urtica urens*), the plantain (*Plantago lanceolata*), the dock (*Rumex pratensis*,) &c.

ARCTIA LUBRICIPEDA.

BUFF ERMINE.

Plate XI. *Figure* 5.

This insect measures from one inch and a half to an inch and three quarters or more in width.

Male: fore wings buff-yellow, more or less deep or pale, with two or three black spots near the inner corner, two near the middle of the front margin, and a slanting row of several others from the outer corner to the lower

margin; but this species, also, is very variable in its markings. Hind wings rather paler buff-yellow, with two or three black spots, head buff, thorax buff, body buff inclining to orange, with a series of black spots.

Localities for this species, which is very common throughout the country, are York, Charmouth, Bisterne, Faversham, Barnstaple, Southport, Durham, Isle of Man, Bute, Dunoon, &c.

The perfect insect appears in June and July.

The caterpillar is dull grey, covered with rather light brown hairs, a narrow whitish line along the back, and another dark grey one on each side of it, palest on the upper edge.

The date of appearance of the caterpillar is in August and September.

It feeds on a variety of common plants.

ARCTIA MENTHRASTI.

WHITE ERMINE.

Plate XI. *Figure* 6.

This insect measures from a little over an inch and a half to one and three quarters, or nearly two inches in width.

Male: fore wings white, with more or less, in some specimens, of a tinge of yellow, neatly spotted over with larger and smaller black spots variously disposed, in some individuals almost wanting, and in others very numerous and even more or less confluent. Hind wings also white, and spotted with larger black dots, head white, thorax

white, body yellowish-orange, with a row of black dots on the back and one on each side, the tip white.

Localities for this species, which is also very plentiful, are Faversham, Bisterne, York, Charmouth, Falmouth, Nafferton, Gloucester, Dorking, Nunburnholme, Southport, Isle of Man, Killarney, &c.

The perfect insect appears in May, June, and July.

The caterpillar is dull black, with blackish-brown hairs, and a narrow orange-red line along the back.

The date of the appearance of the caterpillar is in August and September.

It feeds on all common plants.

ARCTIA URTICÆ.

Plate XI. *Figure* 7.

This insect measures from one inch and a half to nearly one inch and three quarters in width.

Male: fore wings white with two black dots near the front margin, beyond the middle, and one or more others near the outer corner. Hind wings white.

Localities for this species are Winchester, Deptford, Hammersmith Marshes, Manchester, Lewes, Arundel, Wavendon, Preston, Cambridge, &c.

The perfect insect appears in June.

The caterpillar is dark fulvous brown, with long hairs.

The date of the appearance of the caterpillar is in September.

It feeds on the nettle (*Urtica urens*), and various low plants.

LIPARIDÆ.

LIPARIS CHRYSORRHÆA.

BROWN TAIL.

Plate XI. *Figure* 8.

This insect measures from an inch and a quarter to one inch and three quarters in expanse.

Male: fore wings pure snow-white, with usually a blackish speck towards the lower corner, more or less indistinct. Hind wings pure white, head white, thorax white, body white, the tail-tuft golden brown.

Female: fore wings pure white, with sometimes a faint indication of the black spot. Hind wings pure white.

Localities for this species are Lytham, Epping, Teignmouth, Lewes, Lymington, Tenterden, Ramsgate, Stowmarket, Black Park, Chesham, Deal, Dorking, Newhaven, Bisterne, Bristol, Norwich, Canterbury, &c.

The perfect insect appears at the end of July and beginning of August.

The caterpillar is black with reddish hairs, a white streak on each side of the back, interrupted with red on each segment, and a red line above the legs.

The date of the appearance of the caterpillar is in May and June.

The caterpillar feeds on the oak, the elm, the blackthorn, and the whitethorn.

LIPARIS AURIFLUA.

YELLOW TAIL.

Plate XI. *Figure* 9.

This insect measures from one inch and a quarter to over one inch and three quarters in width.

Male: fore wings pure satin-white, with a dull blackish spot near the lower corner. Hind wings pure satin white, thorax white, body white, the tail-tuft yellow following brown.

Localities for this species, which is very common in most districts, are York, Faversham, Nunburnholme, Carlisle, &c.

The situations where it is found are gardens, orchards, and hedge-rows.

The perfect insect appears in August.

The caterpillar is black, with a red stripe along the back, a red line spotted with white on each side of it, and another above the legs.

The date of the appearance of the caterpillar is in May and June.

It feeds on the hawthorn, the oak, the apple, &c.

LIPARIS SALICIS.

WHITE SATIN MOTH.

Plate XI. *Figure* 10.

This insect measures from rather over one inch and a quarter to nearly two inches and a quarter.

Male: fore wings pure satin-white. Hind wings pure satin-white.

Localities for this species are Fairbrook near Faversham, Halton, Blandford, Leicester, Winchester, Worthing, Nafferton, where I took one myself in the vicarage garden; Canterbury, Dorking, Newhaven, Ramsgate, Southport, Exeter, Kingsbury, Stowmarket, Bisterne, Birkenhead, Sudbury, Reading, Lewes, Cambridge, Epping, Tenterden.

The perfect insect appears the end of July and beginning of August.

The caterpillar is whitish, with a black line interrupted with red on each side of the back, the sides bluish-white dotted with black, and with a row of red spots.

The date of the appearance of the caterpillar is in May and June.

It feeds on the poplar and the willow.

LIPARIS DISPAR.

GIPSY.

Plate XII. *Figure* 1.

This insect measures from rather above one inch and a half to two inches and a half, or even three inches across, in some specimens.

Male: fore wings dark brown mingled with dull yellowish, with rather darker blackish-brown waved lines and bars across. Hind wings blackish-brown, mingled with dull yellowish, darker round the margin.

Female: fore wings greyish white, with the rudiments of two or three bars from the upper and lower margins, a brownish-black spot a little way within the former towards the centre, and a brownish-black mark in the shape of a ≺ beyond it, and a dot of the same near the inner corner. Hind wings greyish-white.

To her belong the larger of the measurements given above.

Localities for this species are Sheffield, Liverpool, Halton, Stowmarket, &c., and it used to be plentiful in the fens, when there were more fens than there are now.

The perfect insect appears in August.

The caterpillar is blackish-brown sprinkled with yellowish, a row of raised spots on each side of the back, blue on the front half and reddish on the hinder, and another similar row of reddish ones on each side.

The date of the appearance of the caterpillar is from May to July.

It feeds on the elm, the oak, the lime, &c.

Westwood says, "Varieties occur not only in the ground colour of the wings, the male sometimes pale-brown and the females dusky, but also in the depth of the colour of the markings, which are sometimes almost obliterated."

LIPARIS MONACHA.

BLACK ARCHES.

Plate XII. *Figure* 2.

This insect measures from a little under an inch and a half to rather more than two inches.

Male: fore wings greyish-white, with several transverse waved bars and lines, and black dots, more or less extensive in different individuals. Hind wings pale dusky.

Female: fore wings similarly marked, but more varied both in the number, depth, and continuousness of the streaks. Hind wings dusky, with a row of darker dots on the margin, and a border within them.

from nature on stone by J Erxleben

Vincent Brooks Day & Son. Imp.

Localities for this species are Sheffield, Sandal Beat near Doncaster, Lunn Wood, Barnsley, Epping, Blandford, Brighton, Tenterden, Chilham, Canterbury, York, Lewes, Wavendon, Black Park, Horndean, Lymington, Worthing, Dartford, Worcester, Sherwood Forest, Lower Guiting, Halton, Plymouth.

The perfect insect appears in July and August.

The caterpillar is of a whitish colour, with a wide interrupted streak of brown along the back, which has two large black spots on the third segment, and two smaller ones on the fifth and the twelfth.

The date of the appearance of the caterpillar is in June and July.

It feeds on the oak, the apple, the bramble, the birch, and the fir.

ORGYIA PUDIBUNDA.

PALE TUSSOCK, HOP-DOG.

Plate XII. *Figure* 3.

This insect measures from rather over an inch and three quarters, to a little more than two inches and a quarter in width.

Male: fore wings greyish-white powdered with pale dusky-brown, with a broad bar of darker grey between the first and second lines, followed by a paler streak, the half line also dark grey. Hind wings grey, darker towards the margin.

Female: fore wings pale greyish-white, the first and second lines darker, indicating the bar. Hind wings pale greyish-white.

Localities for this species, which is rather common, are York, Charmouth, Bradfield near Reading, Bolton, Sandal Beat near Doncaster, Uppingham, Faversham, Black Park, West Looe, Newark, Sudbury, &c.

The perfect insect appears in May and June.

The caterpillar, which is extremely beautiful, is very pale yellowish-green, with intense velvet-black bands on the back between the fifth, sixth, seventh, and eighth segments, each of which latter has a tuft of fine yellow, and the twelfth a red one.

The date of the appearance of the caterpillar is in August, September, and October.

It feeds on the hop (*Humulus lupulus*), &c.

ORGYIA FASCELINA.

DARK TUSSOCK.

Plate XII. *Figure* 4.

This insect measures from an inch and a half to an inch and three quarters, or even over two inches across.

Male: fore wings rather dark-grey powdered with brownish-black, and crossed with two curved blackish streaks or bands powdered with orange or orange-yellow, and a blackish spot edged with orange near the inner corner. Hind wings grey.

Localities for this species are York, Lytham, Crosby near Liverpool, Sudbury, Blackpool, Blandford, Stirling, Filey, Edinburgh, Cambridge, Halton, Canterbury, Carlisle, Stowmarket.

The situations where it is found are heathy places.

The perfect insect is out in June and July.

The caterpillar is brownish-black with yellow hairs and black tufts or tussocks on the fifth, sixth, seventh, and eighth segments, with white hairs on each side, and a larger tuft or tussock of black on the twelfth.

The date of the appearance of the caterpillar is found in September and in May.

The caterpillar feeds on different common plants.

ORGYIA CŒNOSA.

Plate XII. *Figure* 5.

This insect measures from one inch and a half to rather more than one inch and three quarters in expanse.

Male: fore wings white, clouded with pale brown. Hind wings white, slightly clouded with brown. The antennæ are thickly pectinated.

Female: fore wings pure glossy white. Hind wings pure glossy white.

Localities for this species are Burwell Fen, Whittlesea Mere, Bidston Marsh near Birkenhead, and Altcar near Liverpool.

The situations where it is found are the fens.

The perfect insect appears in July and August.

The caterpillar is black but covered with yellow hairs, and with three yellow tufts on the back, between two long black ones.

The date of the appearance of the caterpillar is in May.

It feeds on the reed (*Arundo phragmitis*), on the prickly twig-rush (*Cladium mariscus*), also, it is said, on the flowering-rush (*Butomus umbellatus*).

ORGYIA GONOSTIGMA.

SCARCE VAPOURER.

Plate XII. *Figure* 6.

This insect measures about one inch and a quarter in width.

Male: fore wings rich reddish orange-brown, with three or more small white spots near the outer corner, forming more or less of a line within it and the lower corner, at each of which they are larger than between them. There is a fulvous orange patch within the white near the upper margin. Hind wings dusky blackish-brown, the fringe paler.

The female is dark reddish-brown, and has only the rudiments of wings.

Localities for this species, which is rare and very local, are Doncaster, Rosemerrian near Falmouth, Wandsworth, Epping, Black Park, Worcester, Wimbledon, and Combe Wood.

The perfect insect appears in June and July.

The caterpillar is brownish-black, with two long blackish tufts on the second segment, and also on the twelfth —the latter slanting backwards, the former forwards. There is a rich reddish-orange streak on each side of the back, and another below.

The date of the appearance of the caterpillar is in May, from October.

It feeds on the bramble, the oak, and the hazel.

This moth flies in the day time.

ORGYIA ANTIQUA.

VAPOURER.

Plate XII. *Figure* 7.

This insect measures from a little over one inch to nearly one inch and a half across.

Male: fore wings rusty reddish-brown, with two waved cross streaks and a conspicuous white spot near the lower corner. Hind wings rusty reddish-brown.

The female, of a brown colour, is without wings, or at least has only the bare rudiments of them.

Localities for this species, which is common throughout the country, are York, Nafferton, Doncaster, Falmouth, Nunburnholme, Stirling, &c., and it is not unfrequently seen even in the streets of London itself.

The situations where it is found are the sides of woods and lanes.

The perfect insect appears in July and in October.

The caterpillar is of a blackish colour spotted with red, and with several long blackish tufts, two sideways on the fifth and sixth segments, two on the second leaning forwards, and one on the twelfth leaning backwards.

The date of the appearance of the caterpillar is in June and September.

It feeds on the nut, the pear, the rose, and various other trees and shrubs.

This species also flies in the day time, wheeling about in a desultory manner, so that it is not very easy to capture.

ORGYIA V-NIGRA.

DARK V.

Plate XIII. *Figure* 1.

This insect measures from a little over one inch and a half to a little more than two inches across.

Male: fore wings delicate white, with a slender black V beyond the middle near the upper margin. Hind wings delicate white.

A locality for this species is Sole-Street House, near Faversham, Kent, where one was taken by my schoolfellow, Henry Hilton, Esq., now Rector of Milstead, near Sittingbourne. This specimen was brought back by him to Bromsgrove School, Worcestershire, among others he had taken in the midsummer holidays, being quite ignorant at the time of its value. It was for some time in my collection, and is now in the cabinet of Mr. Abraham Edmunds of Worcester, who had it from me.

The perfect insect appears in June and July.

The caterpillar is black on the back, reddish-yellow on the sides, and with eight tufts of hair on the back, —two white, three reddish yellow, and two white.

The date of the appearance of the caterpillar is in May.

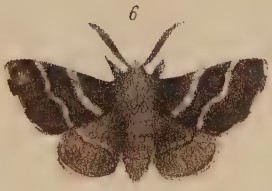
It feeds on the oak, the lime, and the beech.

DEMAS CORYLI.

NUT-TREE TUSSOCK.

Plate XIII. *Figure* 2.

This insect measures from a little under to a little over an inch and a quarter.



From Nature on Stone by J. Erxleben.

Hanau, Bruhl'sche Hof- & Kunsthdlg.

Male: fore wings grey, darker within the outer margin, and crossed by a broad bar of brown bounded on each side by a black waved line, and with two spots near the upper margin. Hind wings dusky, darker within the margin.

Localities for this species are Black Park, Croxteth Park near Liverpool, Witney, Lewes, Blandford, Filey, Epping, Horndean, Glasgow, West Looe, Worcester, Lymington, Edinburgh, Wavendon, Killiecrankie, Teignmouth, Lower Guiting, Halton, Bristol, Stowmarket, and near London.

The situations where it is found are woods.

The perfect insect appears at the end of May and in June.

The caterpillar is yellowish-red, with a broad black line along the back, and tufts of reddish hair on the fifth, sixth, and twelfth segments.

The date of the appearance of the caterpillar is from August to September.

It feeds on the oak, beech, birch, hazel, willow, alder, and blackthorn.

This moth varies in its markings in different individuals.

BOMBYCIDÆ.

TRICHIURA CRATÆGI.

Plate XIII. *Figure* 3.

This insect measures from an inch and a quarter to nearly an inch and a half across.

Male; fore wings pale grey, with a broad bar of a darker shade within an indented blackish line on each

side. Hind wings pale grey, darker within the margin, and with a narrow indented line across the middle.

Female: fore wings brownish-grey, with a darker cross indented band. Hind wings brownish-grey.

Localities for this species are York, Blandford, Carlisle, Burton-on-Trent, Bedford, Epping, Lewisham, Worcester, West Wickham, Derby, Rotherham, Dorchester, Lymington, Ripon, Halton, Lewes, Darlington, Preston, Bristol, Sheffield, Stowmarket, Wavendon.

The situations where it is found are woods.

The perfect insect appears in September.

The caterpillar is bluish-black, with yellow hairs and a yellow stripe on each side within two rows of raised red spots, and also a row of white spots.

The date of the appearance of the caterpillar is in May and June.

It feeds on the whitethorn, the blackthorn, and the sallow.

PŒCILOCAMPA POPULI.

DECEMBER MOTH.

Plate XIII. *Figure* 4.

This insect measures from a little over one inch and a quarter to nearly one inch and three quarters in width.

Male: fore wings very dark purple-red brown, inclining to orange at the inner corner, which colour is followed by a waved line of buff, of which there is another curved line across beyond the middle. Hind wings paler, with a light coloured central stripe, and inclining to transparency.

Localities for this species are Malton, York, Huddersfield, Lewes, Kingsbury, Isle of Man, Halton, Wavendon,

West Wickham, Bisterne, Sheffield, Stowmarket, Horndean, Sidmouth, Worcester, Ipswich, Peterborough, Carlisle, Doncaster, Plymouth, Manchester, Preston, Bristol, Lymington, Teignmouth, Burton-on-Trent, Birkenhead, Lower Guiting, Blandford, Cambridge, Darlington, Epping.

The perfect insect appears in November and December.

The caterpillar is pale yellowish-grey, with a dark grey band spotted with white on each segment, darker on the back, on each side of which there is an interrupted line of orange, and two red spots on the hinder part of the second segment.

The date of the appearance of the caterpillar is in May and June.

It feeds on the poplar, the oak, the whitethorn, and the lime.

This species has been taken in York, coming to a light.

ERIOGASTER LANESTRIS.

SMALL EGGER.

Plate XIII. *Figure* 5.

This insect measures from a little over one inch and a quarter to one inch and three quarters in expanse.

Male: fore wings rather pale-reddish chocolate-brown, with a clear white spot near the inner corner, another near the middle, and a pale-greyish slightly waved line coming from a greyish-white spot on the upper margin, between it and the outer margin. Hind wings pale reddish chocolate-brown, with a faint streak through the middle.

Localities for this species, which is very plentiful in the larva state where it occurs, are York, Stamford Bridge,

Bromsgrove, Worcester, Scarborough, Leicester, Lewes, Huddersfield, Halton, Winchester, Birkenhead, Brighton, Falmouth, Arundel, Maidstone, Ripon, Wakefield, Bristol, Lancaster, Ben Nevis, Burton-on-Trent, Darlington, Cambridge, Dorchester, Lower Guiting, Epping, Wavendon, Exeter, Stowmarket, Teignmouth, Preston.

The situations were it is found are by hedges in lanes.

The perfect insect appears in February and March.

The caterpillar is bluish-black, with transverse rows of three spots on each segment, a yellowish-white line on each side above the feet, and two rows of yellowish-red raised spots on the back.

The date of the appearance of the caterpillar is in May and June. They reside together in large companies under a common web, from which they go out to feed at night. They should be taken with the web to be reared easily and successfully.

The caterpillar feeds on the whitethorn, the blackthorn, &c. It not unfrequently remains till the second year, or even longer, in the chrysalis state.

BOMBYX NEUSTRIA.

LACKEY.

Plate XIII. *Figure* 6.

This insect measures from a little under one inch and a quarter to rather more than one inch and a half in width.

Male: fore wings pale yellowish-red, more or less dark or light, with a cross bar, narrowed in the middle, of a darker colour, bordered with dark lines more or less

distinct. In some, the space between these lines is no darker than the remainder of the wings. Hind wings the same.

Female: fore wings rather paler rusty-red. Hind wings the same.

Localities for this species, which is very plentiful in all the south of England, are York, Falmouth, Doncaster, &c.

The situations where it is found are, for the most part, orchards and gardens.

The perfect insect appears in July and August.

The caterpillar is of a clear bluish-grey colour, with dark-brown and golden-brown hairs, a white line on the back, and an orange-red streak along the sides intersected by a black and blue stripe, and followed by a silvery-blue one spotted with black on the third, fourth, and twelfth segments.

The date of the appearance of the caterpillar is in May and June.

It feeds on the apple, the pear, &c.

BOMBYX CASTRENSIS.

GROUND LACKEY.

Plate XIV. *Figure* 1.

This insect measures from rather under one inch and a quarter to rather more than one inch and a half or nearly one inch and three quarters in width.

Male: fore wings pale yellowish-red, with two streaks or bars across of reddish-brown, and in many specimens a brownish band beyond the second. Hind wings pale yellowish-buff, thorax dull yellow, body dull yellowish brown.

Female: fore wings reddish chesnut-brown, with two indistinct yellowish bands or stripes forming a bar across. Hind wings reddish-brown.

Localities for this species are Rye, St. Osyth's, the Isle of Sheppy, and Erith, Kent.

The situations where it is found are the banks of rivers, and other places near the sea.

The perfect insect appears in July and August.

The caterpillar is of a leaden hue, but much striped; one whitish line along the back, below it a broad orange-brown one, followed by another of silver-grey, within which are black spots on the third, fourth, fifth, and twelfth segments, and covered with bright chesnut hairs.

The date of the appearance of the caterpillar is in May and June.

It feeds on the plantain (*Plantago lanceolata*), the wild carrot (*Daucus carota*), sea wormwood (*Artemisia maritima*), &c.

BOMBYX RUBI.

FOX MOTH.

Plate XIV. *Figure* 2.

This insect measures from a little over an inch and three quarters to two inches and a half in width.

Male: fore wings deep reddish-brown, with two pale yellowish-brown streaks across, the space between them rather darker than the remainder of the wing, as is the outer margin, broadly. Hind wings deep reddish-brown.

Female: fore wings greyish-brown, with one paler streak across, on the outside of a wide bar across. Hind wings greyish-brown.

From Nature on Stone by J. Freeman

Vincent Brooks Day & Son Imp.

Localities for this species are Stockton Common and other places near York, Falmouth, Sudbury, Plymouth, Lynn, Barnstaple, Bisterne, Emsworth, Rugeley, Preston, Birmingham, Manchester, Lancaster, Carlisle, Stirling, Dunoon.

The situations where it is found are open heaths and commons.

The perfect insect appears at the end of May and in June.

The caterpillar is deep velvet-black, with golden rings, and covered with long hairs. In a subsequent stage it becomes golden-brown on the back, and black and fulvous on the sides, on and between each segment.

The date of the appearance of the caterpillar is in August and September.

It feeds on the heath (*Calluna vulgaris*), and the bramble.

This moth, which flies very fast, (namely the male,) and is therefore very difficult to catch, is also difficult to rear, the secret of success being to keep with it a turf with the heath on it in the case.

BOMBYX QUERCUS.

LARGE EGGER.

Plate XIV. *Figure* 3.

This insect measures from over two inches and a quarter to three inches in width.

Male: fore wings fine rich-red brown, with a clear white spot near the middle and towards the upper edge, and a deep yellow band beyond the middle shading into red-brown. Hind wings rich red-brown on the inner

portion, followed by rich fulvous-yellow which merges in a broader border of a paler shade of the former colour.

Female: fore wings brownish-yellow, darker on the inner half, and with a large white spot more or less bordered with black near the middle towards the upper edge, followed by a pale line which shades off into an intermediate colour. Hind wings fulvous-red on the inner portion, fulvous on the outer.

Localities for this species, which is common, are York, Charmouth, Nafferton, Chichester, Plymouth, Falmouth, Isle of Wight, Faversham, Canterbury, Newhaven, West Looe, Bisterne, Barnstaple, Ipswich, Ashbourne, Southport, Carlisle, Arran, Dunoon, Killarney, &c.

The perfect insect appears in July and August.

The caterpillar is black, covered with greenish-grey hairs, with a white stripe along the sides, and a red spot surrounded with white over it on the third and fourth segments.

The date of the appearance of the caterpillar is from September to May.

It feeds on the oak, the whitethorn, &c.

The male flies very fast in a headlong zigzag manner, and is difficult to capture on the wing.

N.B. The hairs of the caterpillar are of a very irritant character and sting the hands, and these often again the face, if touched with them.

*** *Bombyx callunæ.* I have given a figure of the Moths described under this name, it being doubtful whether it is a distinct species, or a permanent variety of the preceding one.

BOMBYX TRIFOLII.

Plate XV. *Figure* 1.

This insect measures from a little under two inches to about two inches and three quarters in expanse.

Male: fore wings reddish-brown, with a white spot near the middle and towards the upper edge, and a pale streak across beyond the middle, forming in some specimens the outer bound of a cross bar contained within it and another towards the inner corner, but in others this is wholly wanting. Hind wings reddish-brown.

Female: fore wings reddish-brown, with a white spot near the middle and towards the upper edge. Hind wings reddish-brown.

Localities for this species are The Land's End, Ramsgate, Plymouth, Birkenhead, Durham, New Brighton, Lytham, Blandford, Lymington, Teignmouth, Eastbourne, and, it is said, the New Forest.

The perfect insect appears in August.

The caterpillar is black, with an orange-red spot on the third and fourth segments, a bluish-white line on each side of the back, which is covered with pale tawny hair, and the remainder greyish.

The date of the appearance of the caterpillar is from September to June.

It feeds on the bird's-foot trefoil (*Lotus corniculatus*), the plantain (*Plantago lanceolata*), the medick (*Medicago falcata*), and the melilot (*Melilotus officinalis*).

ODENESTIS POTATORIA.

DRINKER.

Plate XV. *Figure* 2.

This insect measures from two inches to two inches and a half or nearly three inches across.

Male: fore wings dull brownish-red, with a dark line running slantwise from the outer corner to the lower margin, with more or less of dull yellowish or a paler shade of red along its outside and from its base to the inner corner, in some specimens there is another line across the wing within, also a yellowish-white spot near but above the middle, with (in some individuals) a pale mark spread from it outwards, and a spot or speck of the same above it, near the upper edge. Hind wings dull brownish-red. The antennæ are beautifully pectinated.

Female: fore wings dull yellow, paler or deeper in different specimens, with a rather small yellowish-white spot in the centre, and sometimes another between it and the upper margin, also a darker line slantwise from the outer corner to the lower margin, and in some specimens another across near the inner corner. Hind wings dull yellow, with a darker line across them.

This species is subject to very considerable variety.

Localities for this species, which is a very common one throughout the country, are Charmouth, Nafferton, Wicken Fen, Faversham, Sheppy, Bisterne, Barnstaple, Bolton, Glasgow.

The perfect insect appears in July and August.

The caterpillar is rather dark dull bluish-grey, much freckled with two rows of orange dots on each side below the back, a yellowish line on each side, with short tufts of white hair above the feet, and slanting yellowish-orange streaks on the sides.

From a drawing on Stone by J. Erxleben.

Vincent Brooks Day & Son. Imp.

The date of the appearance of the caterpillar is to the end of May from October.

It feeds on grasses of different kinds.

You must be careful not to touch this caterpillar, for its hairs come off on the hands, and being of a very irritant character produce considerable pain, and still more so on the face if immediately transferred to it.

LASIOCAMPA QUERCIFOLIA.

LAPPET MOTH. GREAT LAPPET.

Plate XV. *Figure* 3.

This insect measures from about two inches and a quarter to three and a quarter in expanse.

Male: fore wings very deep brownish or blackish chesnut-red, more or less clouded with dark brown or black, and with two indented black streaks for the first and second line, a row of black dots for the third line, and a black central spot a little above the centre. Hind wings also deep blackish chesnut-red, but darker, and nearly black across the centre.

Localities for this species are Wicken Fen, Ely, Cambridge, Kingsbury, Exeter, Hertford, Worcester, Epping, Driffield, Winchester, Lymington, Maidstone, Stowmarket, Arundel, Peterborough, Sudbury.

The perfect insect appears at the end of June and in July.

The caterpillar is dark grey, or dull reddish-brown, with deep blue beneath the second, third, and fourth segments, and a pale whitish stripe more or less distinct along the sides.

The date of the appearance of the caterpillar is in May and to June.

It feeds on the plum, the pear, the whitethorn, the blackthorn, the apple, the willow, the dwarf willow, &c.

LASIOCAMPA ILICIFOLIA.

Plate XVI. *Figure* 1.

This insect measures from an inch and a half to nearly one and three quarters across.

Male: fore wings dull reddish-grey, with two slanting lines of blackish dots across before the middle, and beyond it a whitish band towards the upper margin, the fringe pale-yellowish and ferruginous. Hind wings dull reddish-grey, the fringe pale yellowish and ferruginous. The antennæ pectinated.

Localities for this species are Cannock Chase and near Sheffield.

The situations where it is found are heaths and moors.

The perfect insect appears from the end of April to the middle of May.

The caterpillar is grey, with reddish hairs, with a broad line of black interrupted by a spot of red on each segment along the back, between one on each side of it of white, and also a broad bluish stripe along the side.

The date of the appearance of the caterpillar is in June, July, August, and September.

It feeds on the bilberry (*Vaccinium myrtillus*), and the sallow.

ENDROMIS VERSICOLOR.

KENTISH GLORY.

Plate XVI. *Figure* 2.

This handsome and favourite insect measures from about two inches and a quarter to two and nearly three quarters in expanse.

Vincent Brooks Day & Son Imp

Male: fore wings fine clear orange-brown, mottled with grey, with a small patch of white at the inner corner, a black waved streak, margined on its inner side with white, across towards the middle; at the centre, towards the upper margin, is a black V, and beyond the middle another black waved streak, the second line margined on its outside with whitish. Hind wings grey or pale-brown, also several whitish strokes running into the outer margin, and a row of three white spots at the outer corner.

The female is paler in colour, and the V in the upper wing is more distinct, but the general markings are similar.

Localities for this species are Rannoch, Bristol, Brighton, Preston, Ipswich, Lower Guiting, Horsham, Worcester, Monmouth, and St. Leonard's Forest.

The perfect insect appears in the early part of April.

The caterpillar is pale-green, with a yellow line on the sides in front, ten slanting white strokes on each side of the back, and the sides dotted with black and ferruginous.

The date of the appearance of the caterpillar is in July.

It feeds on the birch, beech, lime, hazel, &c.

This moth flies in the day-time, and is very quick and agile on the wing.

SATURNIA CARPINI.

EMPEROR MOTH.

Plate XVI. *Figure* 3.

This noble insect measures from about two inches and a quarter to a little over that width in the male, and from a little under to a little over two and three quarters in the female.

Male: fore wings clear grey-brown, with a large black rounded eye, with rings of dull pink and blue, a little above the middle, set in a white oblong patch, most visible on the inner side; there is a pink mark near the outer corner, and two waved streaks of pale-pink across. Hind wings dull but clear orange-red, with an eye in the middle of black, with rims of dull pink and blue, and a grey-brown border bounding a streak of greyish blue round the outer margin. There is a white collar on the neck.

Female: fore wings grey, marked similarly to the male. Hind wings grey, also with markings much the same.

Localities for this species, which is extensively distributed, are Linwood near Market-Rasen, Langwith near York, Thorne Moor near Doncaster, Canterbury, Addington, Bisterne, Winchester, Ripon, Lancaster, Manchester, Carlisle, Dunoon, Killarney.

The situations where it is found are heathy commons, &c.

The perfect insect appears in May.

The caterpillar, which is handsome and conspicuous, is green, with velvet-black bands and seven raised spots of golden-yellow, surrounded by a rim of black, and tufted with thin black hairs.

The date of the appearance of the caterpillar is in August and September.

It feeds on the heath (*Calluna vulgaris*), the bramble, the willow, the apple, &c.

GEOMETRÆ.—URAPTERIDÆ.

OURAPTERYX SAMBUCARIA.

SWALLOW-TAIL MOTH.

Plate XVII. *Figure* 1.

This insect measures from about an inch and three quarters to nearly two and a half across.

Male: fore wings pale sulphur-yellow, crossed more or less with very fine short streaks of pale olive, first line pale olive, second line pale olive. Hind wings pale sulphur-yellow, with a pale olive line across, and a short tail, at the base of which are two dark brown spots.

Localities for this very common species are York, Worcester, Charmouth, Nunburnholme, Falmouth, Nafferton, Charlton, West Wickham, Carlisle, Newcastle-upon-Tyne, &c.

The situations where it is found are gardens and hedge sides.

The perfect insect appears in July and August.

The caterpillar is yellowish or reddish-brown, with paler streaks.

The date of the appearance of the caterpillar is in October and November.

It feeds on the oak, the bramble, the ivy, the elder, &c.

This is a very fast and random-flying moth, and one which therefore requires some little care to capture.

ENNOMIDÆ.

EPIONE VESPERTARIA.

Plate XVII. *Figure* 2.

This insect measures an inch or a little over in expanse.

Male: fore wings orange, with numerous short transverse lines and marks of a darker shade, a small speck near the middle of similar colour, the first line much curved, and a wide border on the outer margin of purple-red, waved on its inner side. Hind wings orange, also streaked with a darker shade, and with a small central spot of the same, and a wide border on the outer margin of purple-red.

Female: fore wings pale whitish-yellow, with a minute dark dot in the centre; the first line red, and the border at the outer margin. Hind wings pale whitish-yellow, the first line, which is much curved, faded red, a small dark speck near the centre; and a wide border of the same on the outer margin embayed on its inner side.

Localities for this species are near Stockton Station and Stockton Common near York, and Lyndhurst in the New Forest.

The situations where it is found are heathy places, the moth chiefly addicting itself to the dwarf sallow.

The perfect insect appears in July and August.

The caterpillar is brown, with a whitish patch on the sixth segment, and yellow diamond-shaped spots on the seventh, eighth, ninth, tenth, and eleventh, as also a narrow white line on each side of the back as far as the sixth.

The date of the appearance of the caterpillar is in June.

It feeds on the nut-tree.

From Nature & Drawn by J. Erxleben.

Vincent Brooks Day & Son, Lith.

The name of this moth furnishes me with an argument against those who advocate the adoption of an exclusively Latin nomenclature by even persons who have never been put to the trouble of learning any other than their mother tongue. Staunch churchman as I hereditarily am, I exercise the widest tolerance towards those who are not so happy as to be within the pale of the church. You may imagine therefore with what feelings I one day last year received the intelligence that a brother Entomologist had recently captured and killed some two hundred *Presbyterians*. It was, in fact, made a matter of boast. I expressed the thought that it might yet prove not to have been the case; but my informant stood me out that the deed had been done. I could, as a magistrate for the East-Riding, have issued a warrant for the immediate apprehension of this second Claverhouse, but I concluded that, after all, his own reflections would be a sufficient punishment; so I left him to them and went on my way, without further thought of "Bonny Dundee" or of the retributive justice which deeds like his might merit and demand.

EPIONE APICIARIA.

Plate XVII. *Figure* 3.

This insect measures from a little over an inch to nearly one and a quarter in width.

Male: fore wings orange; the first line, which is blackish, much bent in an angle, the second line, which is rather waved, runs from the outer corner slantwise to near the middle of the lower margin, followed by a broad purple-red border, more or less intermixed with the ground colour of the wing, the central spot black. Hind wings

also orange, a small black spot in the middle, and a broad border of purple-red.

Localities for this species are Nunburnholme, York, Birkenhead, Cambridge, Exeter, Poynings, Brighton, Bristol, Manchester, Penbury, Worcester, Kingsbury, Lymington, Stowmarket, Tenterden, Scarborough, Lewes, Darlington, Barnstaple.

The situations where it is found are orchards, hedge-rows, &c.

The perfect insect appears at the end of July, in August, and the beginning of September.

The caterpillar is grey, with a narrow white line on each side of the back, and a whitish band across the middle.

The date of the appearance of the caterpillar is the beginning of August and in May.

It feeds on the willow, the poplar, and the alder.

EPIONE ADVENARIA.

Plate XVII. *Figure* 4.

This insect measures a little over an inch in width.

Male: fore wings greyish-white freckled with pale dull greenish-brown. First line pale brown and a little bent, second line pale brown and slightly bent, followed by a whitish band. Hind wings greyish white, freckled with pale dull greenish-brown, crossed by two bands of a darker shade, and with a small black dot above the middle.

Localities for this species are Pembury, Portishead, Lewes, Emsworth, Tonbridge, Battle, Worcester.

The perfect insect appears in June.

The caterpillar is greyish-brown, darkest above, with

two white elongated spots on the sixth segment, and diamond-shaped ones on the seventh, eighth, ninth, and tenth.

The date of the appearance of the caterpillar is in July.

It feeds on the bilberry (*Vaccinium myrtillus.*)

RUMIA CRATÆGARIA.

BRIMSTONE MOTH.

Plate XVII. *Figure* 5.

This insect measures from a little over an inch and a quarter to above one inch and a half in expanse.

Male: fore wings deep sulphur-yellow, with a few dull red spots or marks along the upper margin, the first line composed of a few of these spots, the second line also similarly, but the markings are much more or much less distinct in some individuals than in others. Hind wings sulphur-yellow.

Localities for this species, which is excessively common, are York, Charmouth, Falmouth, &c., &c.

The situations where it is found are hedgerows, gardens, woods, lanes, &c.

The perfect insect appears in April, May, and August.

The caterpillar is variously mottled green and brown, with a hump on the seventh segment, and two small excrescences on the ninth.

The date of the appearance of the caterpillar is in June and in October.

It feeds on the whitethorn, the blackthorn, &c.

VENILIA MACULARIA.

SPOTTED YELLOW.

Plate XVII. *Figure* 6.

This insect measures an inch or a little over an inch in width.

Male: fore wings yellow, spotted with greyish-brown in the tracks of the half line, first line, and second line, and also outside the latter. Hind wings yellow, and spotted with greyish-brown.

Localities for this species are York, Darlington, Exeter, Huddersfield, Barnstaple, Blean Wood near Canterbury, Faversham, Lymington, Bristol, Alfred's Well and the Ran Dan Woods near Bromsgrove, Plymouth, Lewes, West Looe, Stowmarket, Sudbury, Dorking, Newcastle-on-Tyne, Pembury, Tenterden, Brighton.

The situations where it is found are woods.

The perfect insect appears in May, June, and July.

The caterpillar is bluish-green with a dark line of the same along the back, and a whitish line on each side of it.

The date of the appearance of the caterpillar is in August and September.

It feeds on the nettle (*Urtica urens*), and other common plants.

ANGERONA PRUNARIA.

ORANGE MOTH.

Plate XVII. *Figure* 7.

This fine insect measures from an inch and three quarters to nearly two inches across.

Male : fore wings orange, finely streaked all over with small brown lines. Hind wings orange speckled with brown. The antennæ are pectinated.

Female : fore wings pale orange yellow.

Localities for this species are York, Edlinton Wood near Doncaster, Stowmarket, Pembury, Black Park, Plymouth, Lymington, Lewes, Barnstaple, Worthington, Tenterden, Plumstead, Horndean, Exeter, West Looe, Brighton, Bristol.

The situations where it is found are woods.

The perfect insect appears in June and July.

The caterpillar is variable, brown, yellowish-brown, or buff, with paler markings, with two small points at the tail, and a double hump on the fifth, ninth, and twelfth segments, the last the smallest.

The date of the appearance of the caterpillar is in October, April, and May.

It feeds on the plum, &c.

METROCAMPA MARGARITARIA.

LIGHT EMERALD.

Plate XVII. *Figure* 8.

This insect measures from under an inch and a half to nearly two inches in expanse.

Male : fore wings pale green, first line white, second line also white, edged with a darker shade of olive-green on its inside edge. There is a small reddish-brown speck on the outer corner. Hind wings pale green, crossed by a white line edged with a darker shade of olive-green on its inside edge.

Localities for this species are York, Black Park, Halton, Manchester, Newcastle-on-Tyne, Huddersfield, Brighton, Dorking, Bere Forest, Tenterden, Stowmarket, Bristol, Pembury, Darlington, Cambridge, Edinburgh, Lymington, Scarborough, Exeter, Lewes, Barnstaple, Birkenhead, Worthing.

The perfect insect appears in July and August.

The caterpillar is dull brownish-green, with a black line along the back, and a row of white dots on each side of it. The head orange coloured.

The date of the appearance of the caterpillar is in September, and again in May.

It feeds on the oak, the beech, the birch, and the hornbeam.

ELLOPIA FASCIARIA.

BARRED RED.

Plate XVII. *Figure* 9.

This insect measures from a little under an inch and a half to that width in extent.

Male: fore wings greyish-red and rather inclined to be transparent, first line darker red and slightly bent, second line also rather more bent near the upper margin, and then curved inwards. Hind wings paler greyish-red, crossed with a line of red.

The female is rather paler than the male.

Localities for this species are Faversham, Manchester, Scarborough, Bristol, Dartford, Buttercrambe Moor, Birkenhead, Lymington, Pembury, Lower Guiting, Darlington, Lynton, Preston, Carlisle, Brighton, Wavendon, York, Black Park, Torwood, Stirling, Rannoch, Inverness, Edinburgh.

The perfect insect appears at the end of June and in July.

The caterpillar is reddish-grey, with a row of reddish-brown spots, divided by a line along the back, which is paler.

The date of the appearance of the caterpillar is in September, and again in April.

It feeds on the fir (*Pinus sylvestris*), on the trunk of which the moth may be seen at rest.

EURYMENE DOLOBRARIA.

SCORCHED WING.

Plate XVIII. *Figure* 1.

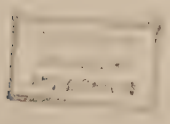
This insect measures from a little under to a little over an inch and a quarter in expanse.

Male: fore wings pale yellowish, crossed by many narrow threads of brown. There is a large reddish-brown patch near the lower corner. Hind wings pale yellowish, with fine darker streaks along the margin, and a large reddish-brown patch within the lower corner.

Localities for this species are York, Scarborough, Buttercrambe Moor, Brighton, Stowmarket, Birkenhead, Lewes, Bromsgrove, Halton, Manchester, Lewisham, Black Park, Exeter, Darlington, Worcester, Ipswich, Bowness, Bristol, Lymington, Pembury.

The situations where it is found are woods and hedge-rows.

The perfect insect appears in June.



The caterpillar is reddish-brown, the second segment raised, the ninth still more so; a whitish-grey line on each side of the back.

The date of the appearance of the caterpillar is in August, September, and October.

It feeds on the birch, the lime, and the oak.

PERICALIA OYRINGARIA.

LILAC BEAUTY.

Plate XVIII. *Figure* 2.

This insect measures from a little under to about an inch and a half in expanse.

Male: fore wings a mixture of yellow, grey, and reddish-pink, with two white or faint pink marks near the outer corner, and another on the upper margin. The second line crosses slantwise, followed by another short one outside it. Hind wings yellowish-red and grey, crossed by a darker line near the inner corner, and a row of a few dots near the middle.

Localities for this species are York, Huddersfield, Worcester, Newnham, Bromsgrove, Cambridge, Lewes, Black Park, Manchester, Bristol, Pembury, Halton, Worthing, Stowmarket, Wavendon, Tenterden, Brighton.

The situations where it is found are woods and gardens.

The perfect insect appears in July.

The caterpillar is variously bluish-brown or yellowish-green, with a brown stripe along the back, the sixth and seventh segment each with two small, and the eighth with a large prominence, the latter bent backwards.

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From Nature on Stone by J. Erxleben.

Vincent Brooks Day & Son Lith.

The date of the appearance of the caterpillar is in April and May.

It feeds on the lilac, the jessamine, and the privet.

SILENIA ILLUNARIA.

EARLY THORN.

Plate XVIII. *Figure* 3.

This insect measures from a little under an inch and a half to nearly one and three quarters in width.

Male: fore wings dull yellowish-grey, more or less marked with brown and very pale pink along the upper margin, first line dark brown and slightly bent, the second line also dark brown, little bent and nearly straight across, between the two is a broader central line. There is a patch of olive or orange-brown at the outer corner. Hind wings yellowish-grey, with a rather darker bar across more or less distinct.

The female resembles the male, but is rather darker coloured.

Localities for this species, which is common throughout the country, are York, Nun-Appleton, Isle of Wight, Isle of Man, &c.

The situations where it is found are hedge-rows and wood sides.

The perfect insect appears in March and April, and also again in July.

The caterpillar is greyish-brown, with a line below the back of a paler shade, the eighth and ninth segments with slight prominences.

The date of the appearance of the caterpillar is in June and July.

It feeds on the plum, the oak, the willow, &c.

SELENIA LUNARIA.

LUNAR THORN.

Plate XVIII. *Figure* 4.

This insect measures from a little under to a little over an inch and three quarters across.

Male: fore wings a mixture of pale grey and dull yellow, the first line blackish and much bent, the second line also blackish and nearly straight, enclosing a patch of yellow-brown, there is also a patch of rich reddish-brown at the outer corner. Hind wings greenish-yellow, with a dark spot near the centre, from which a dark line runs to the inner side.

Localities for this species are York, Doncaster, Wakefield, Scarborough, Brighton, Plymouth, Dulwich, Black Park, Lewisham, Sudbury, Worcester, Pembury, Durham, Stowmarket, Bristol, Lower Guiting, Darlington, Manchester, Lymington.

The perfect insect appears in June.

The caterpillar is grey mottled with brown and reddish-brown, the third segment with a dark brown prominence, and the sixth and the ninth also with prominences.

The date of the appearance of the caterpillar is in September.

It feeds on the oak, sloe, whitethorn, elm, &c.

SELENIA ILLUSTRARIA.

BEAUTIFUL THORN.

Plate XVIII. *Figure* 5.

This insect measures from a little over an inch and a quarter to about one and three quarters in expanse.

Male: fore wings pale grey faintly tinged with red and shaded with brown, the first line dark brown and bent, the second line also dark brown and waved. Hind wings pale grey.

Localities for this species are Darenth Wood, Brighton, West Wickham, Halton, Croydon, Black Park, Bristol, Box Hill, Lymington, Epping, Carlisle, Worcester, Exeter, Plymouth.

The perfect insect appears in May, and again in August.

The caterpillar is a mixture of greyish-brown and dark reddish-brown, in stripes and spots, with prominences on the fifth, sixth, eighth, and ninth segments, the two hindmost of them being larger than the others.

The date of the appearance of the caterpillar is in June and September.

It feeds on the birch, the beech, the ash, and the oak.

ODONTOPTERA BIDENTARIA.

SCALLOPED HAZEL.

Plate XVIII. *Figure* 6.

This insect measures from about an inch and a half to nearly one and three quarters across.

Male: fore wings rather pale yellowish-brown, speckled with darker; first line dark olive-brown, waved, and

running nearly straight across, second line also dark olive-brown, indented on its inner side, and bounded by a narrow streak of white on the outer, central spot dark brown, whitish in the middle. Hind wings pale yellowish-brown, with a darker central spot and cross line.

Localities for this species, which is widely distributed, are York, Canterbury, Stirling, Bromsgrove, Buttercrambe Moor, &c.

The situations where it is found are lanes and hedge sides.

The perfect insect appears in April, May, and June.

The caterpillar is variously, like the three witches, grey, green, or brown, much variegated with darker markings; a row of diamond-shaped marks along the back.

The date of the appearance of the caterpillar is in September and October.

It feeds on the oak, willow, alder, &c.

CROCALLIS ELINGUARIA.

SCALLOPED OAK.

Plate XVIII. *Figure* 7.

This insect measures from a little under an inch and a half to not quite one and three quarters in width.

Male: fore wings cream coloured, first line brown and nearly straight, second line brown and waved, but in some specimens more sharply curved than in others, the central shade darker than the rest of the wing, central spot dark brown; there is a row of brown dots along the outer margin. Hind wings cream coloured, rather paler than the other, central spot brown, and there is a row of

brown dots within the outer margin. The antennæ are pectinated.

The female is paler than the male.

Localities for this species, which is generally diffused through the country, though nowhere very abundant, are York, Crambe, Nun-Appleton, Bromsgrove, Faversham, Canterbury, Black Park, Mickleham, Barnstaple.

The situations where it is found are woods and hedge sides.

The perfect insect appears at the end of July and in August.

The caterpillar is variable in its markings, the ground colour greyish-brown, more or less mottled with darker markings, and whitish and violet.

The date of the appearance of the caterpillar is in April and May.

It feeds on the whitethorn, the oak, the elm, and the blackthorn, &c.

ENNOMOS ALNIARIA.

Plate XVIII. *Figure* 8.

This insect measures about two inches across.

Male: fore wings pale yellow frosted with brown, the first line dark brown and nearly straight, the second line slanting and bent.

Localities for this species are Brighton, Margate, and the North Foreland.

The perfect insect appears in September.

The caterpillar is brown mottled with whitish, with slight prominences on the seventh, tenth, and twelfth segments, and on the sides of the eighth.

The date of the appearance of the caterpillar is in June.

It feeds on the alder, the birch, &c.

ENNOMOS TILIARIA.

CANARY THORN.

Plate XVIII. *Figure* 9.

This insect measures about an inch and a half across.

Male: fore wings a mixture of very deep yellow and rich brown, first line dark brown and slightly bent near the upper margin, second line also dark brown and curved.

Localities for this species are York, Scarborough, Bristol, Hammersmith, Birkenhead, Cambridge, Darlington, Lewisham, Lewes, Sudbury, Preston, Brighton, Dumfries, Exeter, Lymington, Plymouth, Wavendon, Manchester, Stowmarket.

The perfect insect appears at the end of August and in September.

The caterpillar is brown mottled with darker brown and grey, with irregular streaks of pale buff, and with prominences on the sixth, seventh, eighth, ninth, and tenth segments.

The date of the appearance of the caterpillar is in June.

It feeds on the birch, the oak, the lime, the alder, &c.

This species comes to a light.

ENNOMOS FUSCANTARIA.

Plate XVIII. *Figure* 10.

This insect measures about an inch and a half or a little over in expanse.

Male: fore wings dull yellowish inclining to brown towards the lower margin, the first line is brown and nearly straight, the second line slightly waved, the two meeting at the lower edge, the central spot pale brown.

Localities for this species are York, Lewisham, Birkenhead, Lewes, Ipswich, Bristol, Marlow, Halton, Worcester, Stowmarket, Barnstaple, Darlington, Newnham, Crewe, Plymouth, Manchester, Tenterden, Worthing, &c.

The perfect insect appears at the end of August and in September.

The caterpillar is green or yellowish-green, with a reddish-brown band on the third, sixth, and ninth segments, and two spots of the same colour on the hindmost one.

The date of the appearance of the caterpillar is in June.

It feeds on the ash and the privet.

This species also comes to a light.

ENNOMOS EROSARIA.

SEPTEMBER THORN.

Plate XIX. *Figure* 1.

This insect measures about an inch and a half or a little over in expanse.

Male: fore wings dull yellowish, the first line dark brown and a little bent near the upper edge, the second line also

dark brown and slightly waved. Hind wings similar in colour, with, in some specimens, an indistinct central line.

This is rather a variable insect in the depth of the ground colour and markings.

Localities for this species are York, Stowmarket, Lewes, Sherwood Forest, Lewisham, Birkenhead, Sudbury, Black Park, Barnstaple, Worthing, Manchester, Brighton, Bristol, Lymington, Tenterden.

The situations where it is found are woods.

The perfect insect appears at the end of August and in September.

The caterpillar is greyish mottled with brown, with prominences on the third, sixth, eighth, ninth, and twelfth segments, and on the sides of the seventh.

The date of the appearance of the caterpillar is in June.

It feeds on the oak, the birch, &c.

ENNOMOS ANGULARIA.

AUGUST THORN.

Plate XIX. *Figure* 2.

This insect measures about an inch and a half or a little over in width.

Male: fore wings yellowish, more or less tinged with pale brown or reddish, the first line, which is brown, is bent near the upper edge, the second line, which is also brown, less bent, and a darker shade proceeds from thence to the outer edge of the wing. The central spot is only faintly indicated. Hind wings similar in colour to the fore ones, with a faint line across them.

Localities for this species are York, Scarborough, Exeter, Plymouth, Stowmarket, Kingsbury, Bristol, Lewes,

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Newnham, Manchester, Pembury, Worthing, Lymington, Lower Guiting, Halton, Brighton.

The perfect insect appears in August and September.

The caterpillar is grey shaded with brown, with prominences on the sixth, seventh, and ninth segments, the two former having them on the sides also, and two on the twelfth segment.

The date of the appearance of the caterpillar is in June.

It feeds on the oak, &c.

HIMERA PENNARIA.

FEATHERED THORN. OCTOBER MOTH.

Plate XIX. *Figure* 3.

This insect measures more than an inch and three quarters across.

Male: fore wings pale reddish-brown with a tinge of grey; the first line, which is dark blackish-brown followed on the outside edge by a streak of a pale shade, is rather bent; the second line much less so. The central spot blackish-brown, and there is a white spot near the outer corner. Hind wings rather paler in colour. The antennæ are very widely pectinated.

Female: fore wings paler than in the male, but the markings are similar, except that there is no white mark at the outer corner. Hind wings also paler, with a dark central dot.

Localities for this species are York, Scarborough, Huddersfield, Rawmarsh, Buttercrambe Moor, Lower Guiting, Darlington, Manchester, Edinburgh, Stowmarket, Lewes, Lymington, Darenth Wood, Sidmouth, Plymouth, Black

Park, Horndean, Birkenhead, Brighton, Exeter, Halton, Worcester, Newnham, Kingsbury, Cambridge, Bristol.

The situations where it is found are woods.

The perfect insect appears in October and November.

The caterpillar is pale greyish-brown with irregular white and brownish-black markings along the back, the last segment but one with two short red spines and prominences, and the front ones with red patches on the back.

The date of the appearance of the caterpillar is in May.

It feeds on the oak, &c.

AMPHIDASYDÆ.

PHIGALIA PILOSARIA.

PALE BRINDLED BEAUTY.

Plate XIX. *Figure* 4.

This insect measures from an inch and a half to nearly two inches in width.

Male: fore wings pale greenish-grey, first line a darker hue of the same, much curved and waved, second line also much bent, and between them is a central line of a like character running through the central spot which is indistinct, and outside the second a third but straighter and less decisively apparent line. In some specimens all these lines are almost wholly wanting. Hind wings also greenish-grey but paler in colour, with a waved dusky line across, and traces of another, or part of another, near the lower edge.

The female is without wings.

Localities for this species, which is rather common, are York, Londesborough, Scarborough, Huddersfield, Lewes, Darlington, Bristol, Lyndhurst, Brighton, Stowmarket, Falmouth, Emsworth, Worthing, Exeter, Dunham Park, Torwood, Edinburgh, Halton, Kingsbury, Manchester, Birkenhead, Newnham.

The situations where it is found are lane sides, &c.

The perfect insect appears in January, February, and March.

The caterpillar is a mixture of brown, reddish-brown, yellowish, and black, the head, tail, and legs, rusty red.

The date of the appearance of the caterpillar is in May and June.

It feeds on the oak, the whitethorn, &c.

NYSSIA ZONARIA.

BELTED BEAUTY.

Plate XIX. *Figure* 5.

This insect measures about an inch or a little over in expanse.

Male: fore wings greyish-white, with three streaks of brown, each within the other, following the outer margin, and other streaks running from the innermost of them to the inner corner from the upper to the lower margin. Hind wings marked much in the same way, but much less decisively. The body is crossed with narrow pale rings.

The female is without wings.

Localities for this species are the Isle of Skye, Black Rock, &c. near Liverpool, Birkenhead, and New Brighton.

The situations where it is found are sandy places on the margin of tidal rivers.

The perfect insect appears in February, March, and April, and again in June and July.

The caterpillar is green more or less dark, mottled with whitish, with a pale yellow stripe on each side, and a small black eye-like spot on the hindmost segments.

The date of the appearance of the caterpillar is in May and June.

It feeds on the yarrow (*Achillea millefolia*), and other low plants.

NYSSIA HISPIDARIA.

SMALL BRINDLED BEAUTY.

Plate XIX. *Figure* 6.

This insect measures from one inch and a quarter to a little over in width.

Male: fore wings dark greenish grey tinged with more or less of dull yellowish, the first line of a darker shade slightly curved, the second line still darker and more waved and bent, with between the two a central line of the same. Hind wings similar in colour but rather lighter, with a streak across.

Localities for this species are Sandal Beat near Doncaster, Scarborough, Huddersfield, Manchester, Lyndhurst, Dunham Park.

The situations where it is found are woods, on the trunks of oaks and other trees.

The perfect insect appears in January, February, March, and April, and also in September.

The caterpillar is greyish-brown, spotted with orange marks and raised dots.

It feeds on the elm and the oak.

The chrysalis is found under the ground.

BISTON HIRTARIA.

BRINDLED BEAUTY.

Plate XIX. *Figure* 7.

This insect measures one inch and three quarters or a little over in extent.

Male: fore wings greenish grey-brown, the first line darker and widely shaded, the second of a similar colour enclosing a central line which runs through the central spot which is dark brown, but sometimes wanting. Hind wings paler but otherwise similar, with a few dark marks running in from the inner edge, and a dark central spot. The antennæ are feathered but not quite to the tip.

Female: fore wings more transparent, the lines often almost wanting. Hind wings also paler and more transparent and with more or less of a dull yellow tinge, and traces of two lines across.

Localities for this species are Scarborough, Falmouth, Canterbury, Cambridge, Kingsbury, Stowmarket, Exeter, and London.

The perfect insect appears in April.

The caterpillar, which is very variable, is of a general greenish-brown colour, with a pale yellow interrupted line

along the sides, and yellowish spots indicating another below the back on the sixth, seventh, eighth, ninth, and tenth segments, and greyish markings and pale stripes. There are two small prominences on the twelfth segment.

The date of the appearance of the caterpillar is from the end of June to the beginning of July, and on to August.

It feeds on the elm, the lime, the privet, &c.

The chrysalis is found under the ground.

AMPHIDASIS PRODROMARIA.

OAK BEAUTY.

Plate XIX. *Figure* 8.

This insect measures from rather over an inch and a half to two inches, or even more, in width.

Male: fore wings greyish-white much frosted with black, first line blackish, rather bent and bordered on its inner side by a broad band of reddish-brown; second line blackish, more waved, and followed on its outside by a broad band of reddish-brown, the central spot blackish. Hind wings greyish-brown, with two waved streaks across. The antennæ are pectinated to the tip.

Localities for this species are York, Huddersfield, Scarborough, Plymouth, Brighton, Bristol, Halton, Sandal Beat near Doncaster, Maidstone, Shooters Hill, Newnham, Cambridge, Manchester, Darlington, Exeter, Lyndhurst, Lewisham, Darenth Wood, Dunham Park, Stowmarket, Barnstaple, Lewes.

The situations where it is found are oak woods.

The perfect insect appears in March and the beginning of April.

The caterpillar is of a marbled appearance, greyish-brown with darker markings and white dots of different sizes, and two small reddish prominences on the eighth, ninth, and twelfth segments.

The date of the appearance of the caterpillar is in June, July, and August.

It feeds on the oak, the birch, &c.

The chrysalis is found under the ground.

AMPHIDASIS BETULARIA.

PEPPER MOTH. PEPPER-AND-SALT MOTH.

Plate XIX. *Figure* 9.

This insect measures from a little over an inch and a half to nearly two inches and a quarter in expanse.

Male: fore wings white speckled all over, more or less darkly, some specimens being almost black, with black dots, and occasionally indications of the first and second line, inclosing a central line, longer or shorter, from the upper margin. Central spot black. Hind wings white, speckled all over with black dots, and with two black lines —a short and a long one—running inwards from the lower corner, more or less distinctly in different individuals.

Localities for this species, which is rather common throughout the country, are Bromsgrove, Stoke Prior, York, Sandal Beat near Doncaster, Beverley, Swinhope, Nunburnholme, &c.

The situations where it is found are woods and gardens.

The perfect insect appears in May and June..

The caterpillar is variable in colour, brown more or less tinged with darker brown, yellowish, or green, with paler stripes and two whitish prominences on the ninth and twelfth segments.

The date of the appearance of the caterpillar is in August and September.

It feeds on the elm, the oak, the birch, the poplar, &c.

The chrysalis is found under the ground.

BOARMIDÆ.

HEMEROPHILA ABRUPTARIA.

BARK MOTH. WAVED UMBER.

Plate XIX. *Figure* 10.

This insect measures from a little under an inch and a half to a little over that measurement in width.

Male: fore wings pale brownish-yellow, with a narrow reddish-brown streak along the upper edge, and a wide dark patch of the same within the outer margin, narrowing to the outer corner. Central spot black. Hind wings pale brownish-yellow with numerous slender streaks of reddish-brown and one wide bar of the same across, with a fainter one within it. The antennæ are pectinated nearly to the tip.

Localities for this species are York, Scarborough, Sandal Beat near Doncaster, Birkenhead, Tenterden, Lewes,

Stowmarket, Newnham, Wandsworth, Brighton, Exeter, Nunburnholme, Bromsgrove, Bristol, Kingsbury, Cambridge, Darlington, &c.

The situations where it is found are woods and gardens.

The perfect insect appears at the end of April, in May, and on to the beginning of June.

The caterpillar is blackish-brown with a whitish band before the second segment, and prominences on the sixth and twelfth.

The date of the appearance of the caterpillar is in July.

It feeds on the lilac, &c.

The chrysalis is found attached to the stem of the tree, enclosed in a tough web.

CLEORA VIDUARIA.

SPECKLED BEAUTY.

Plate XX. *Figure* 1.

This insect measures from an inch and a quarter to a little over that width, or nearly an inch and a half across.

Male: fore wings whitish more or less varied with grey and dusted with black atoms: the first line is black and bent, the second line also black, bent and waved; the central shade not so dark. Hind wings with a row of dusky spots across the middle. The antennæ are pectinated nearly to the tip.

Localities for this species are near Ambleside, Rydal, Brighton, and Lyndhurst in the New Forest.

The situations where it is found are woody places.

The perfect insect appears in June.

CLEORA GLABRARIA.

DOTTED CARPET.

Plate XX. *Figure* 2.

This insect measures a little over an inch in expanse, to nearly an inch and a quarter.

Male: fore wings whitish, finely irrorated with black, first line black and slightly bent, second line also blackish and followed by another shaded off between it and the outer margin. Central spot blackish, and from it a blackish patch runs up to the upper margin, on which are four dark dots. Hind wings with a blackish central spot, and an indistinct streak across the middle. The antennæ are pectinated nearly to the tip.

Localities for this species are Lyndhurst in the New Forest, Edinburgh, Carlisle, and Clovelly.

The situations where it is found are wooded places.

The perfect insect appears in the month of July.

The caterpillar is greenish-white, with a prominence and black spot on the top of each segment.

The date of the appearance of the caterpillar is in May, June, and July.

It feeds on lichens appertaining to fir trees.

The chrysalis is found among moss, or attached to bark in a slight cocoon.

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CLEORA LICHENARIA.

LICHEN MOTH.

Plate XX. *Figure* 3.

This insect measures from a little over an inch to one and a quarter in width.

Male: fore wings a mixture of greenish white and grey, the first line black and slightly bent, the second line more distinct in some specimens than in others, very much bent and also indented especially on the middle part. Central spot black, but sometimes wanting, or only faintly visible. The outer margin spotted with black. Hind wings rather paler greenish-white and grey, with an indented black line across below the middle, and another similar one within the outer margin. Central spot dark, but not very visible. The antennæ are pectinated to the tip.

Localities for this species are York, Scarborough, Lower Guiting, Barnstaple, Pembury, Faversham, Cambridge, Charmouth, Exeter, Lewes, Darlington, Halton, Tenterden, Nunburnholme, Lyndhurst, Kingsbury, Stowmarket, Black Park, West Looe, Worthing, Worcester, Manchester.

The situations where it is found are woods, gardens, and hedgerows.

The perfect insect appears about the end of July.

The caterpillar is greyish or greenish, with numerous prominences on the back, and black markings.

The date of the appearance of the caterpillar is in September and May.

It feeds on lichens, on the elm, the poplar, &c.

The chrysalis is enclosed in a slight cocoon, and is to be found attached to the bark or moss on the tree.

BOARMIA REPANDARIA.

MOTTLED BEAUTY.

Plate XX. *Figure* 4.

This insect, which is a very variable one both in size, general colour, and markings, measures from an inch and a half to an inch and three quarters across.

Male: fore wings pale brown-grey, much mottled together. The first line blackish-brown and considerably bent, the second line also blackish-brown and much bent, edged on its outside with dull yellowish-brown. The central spot black, sometimes joining a blackish-brown patch running down from the upper margin in the way of a central line. There is also a partial third line, much indented, and edged on its outside with white in some specimens and a narrow indented and interrupted line of black along the outer margin. Hind wings pale brown-grey, with a blackish-brown line across the middle, and another whitish one, very much indented, between it and the outer margin, along which is a narrow indented line of black.

Localities for this species, which is extremely common, especially in the south, are York, Black Park, West Looe, Charmouth, &c.

The situations where it is found are hedgerows, gardens, and woods.

The perfect insect appears in June and July.

The caterpillar is yellowish-grey spotted with black, with small prominences and a dull yellowish-white line on the back, and another on the sides.

The date of the appearance of the caterpillar is in April and May.

It feeds on the bramble, the birch, the sloe, the spindle, &c.

The chrysalis is found under the ground.

BOARMIA RHOMBOIDARIA.

WILLOW BEAUTY.

Plate XX. *Figure* 5.

This insect, which is another very variable one, measures from an inch and a half to one and three quarters in expanse.

Male: fore wings brownish-grey, mottled with darker. The first line blackish-brown and a little bent, the second line also blackish-brown and a little bent near the upper margin, central line indistinct, central spot blackish-brown, third line also indistinct, nearly following the outer margin. Hind wings also brownish-grey with two thin dentated lines across, and another within the outer margin near the lower corner.

Localities for this species, which is very common all over the country, especially in the south, are York, and to the Cumbraes in Scotland.

The situations where it is found are lanes, hedge-sides, and woods.

The perfect insect appears in June and July.

The caterpillar is brownish or yellowish-grey, with small prominences and a row of spots of a darker shade along the back, and a greyish-yellow line on the sides.

The date of the appearance of the caterpillar is in September and October.

It feeds on the oak, the plum, and other trees.

The chrysalis is found under the ground.

BOARMIA ABIETARIA.

ENGRAILED. SATIN BEAUTY.

Plate XX. *Figure* 6.

This insect measures from a little under an inch and three quarters to two inches in expanse.

Male: fore wings blackish grey, the first line black and curved, the second line also black, bent and indented. Central spot black. Hind wings brownish at the base, with an obscure spot near the centre, beyond which is an indistinct curved line across, dark on its inner and light on its outer edge.

The female is paler, and the grey has a tinge of pale orange.

Localities for this species are Black Park, Lyndhurst, Lower Guiting, Pembury, Wavendon, and Dumbarton.

The situations where it is found are wooded places.

The perfect insect appears at the beginning of July. The caterpillar is reddish-grey, the back paler and with small prominences, below it an interrupted black line, and on the sides, beneath it again, a yellowish one.

The date of the appearance of the caterpillar is in May and June.

It feeds on the fir.

The chrysalis is found under the ground.

BOARMIA CINCTARIA.

RINGED CARPET.

Plate XX. *Figure* 7.

This insect, which is also a variable one, measures from an inch and a quarter to nearly one and a half in width.

Male: fore wings whitish-grey, the first line blackish brown and bent, the second line also blackish, bent and indented, the third line whitish and jagged. The central spot whitish edged with brown. The body has a white band or belt at the base. Hind wings whitish-grey, with several slender dark streaks and a central spot.

Localities for this species are the Isle of Man, Lyndhurst, the New Forest, Brighton, and Dalmally.

The perfect insect appears in May and June.

The caterpillar is dark brown, with small prominences and a row of whitish marks along the back from the fifth to the eighth segment, through which runs a brown line.

The date of the appearance of the caterpillar is in September.

The caterpillar feeds on the heath *(Calluna vulgaris)*.

The chrysalis is found under the ground.

BOARMIA ROBORARIA.

GREAT OAK BEAUTY.

Plate XX. *Figure* 8.

This fine insect measures from a little over two inches to nearly two and a half in width.

Male: fore wings light grey, dusted with blackish brown dots and small marks, the first line blackish-brown but indistinct, second line also blackish-brown but indistinct, slightly bent and jagged near the central line, third line a band of pale brown, followed within the outer margin by another double blackish-brown line, but all these lines are variable in some individuals. Hind wings light grey, with several streaks, three principal ones, and an eye-mark in the centre.

Localities for this species are Lyndhurst in the New Forest, Manchester, Black Park, Worcester, Lewes, West Wickham, Tenterden.

The situations where it is found are woods.

The perfect insect appears at the end of June and in July.

The caterpillar is greyish-brown, with small prominences, some brown lines and pale dots, a line on the sides spotted with black and white, and another whitish one below.

The date of the appearance of the caterpillar is in September, and again in May.

It feeds on the oak and the beech.

The chrysalis is found under the ground.

BOARMIA CONSORTARIA.

PALE OAK BEAUTY.

Plate XX. *Figure* 9.

This insect measures from an inch and three quarters to two inches in expanse.

Male: fore wings grey dusted with blackish-brown dots and small marks, the first line brownish and

rather bent, the second line much bent, joining a central line of brownish, beyond it is a third band of pale brownish, and within the outer margin two grey jagged lines, and a row of black dots. Hind wings greyish-white crossed by three streaks, the middle one widened in some specimens, and with an eye-shaped spot in the centre.

Localities for this species are Darenth Wood, Brighton, Pembury, and Lyndhurst in the New Forest.

The situations where it is found are woods.

The perfect insect appears in June.

The caterpillar is pale greyish-brown, with small prominences, and dark lead-coloured dots and marks.

The date of the appearance of the caterpillar is in August and September.

It feeds on the poplar, the willow, and the oak.

The chrysalis is found under the ground.

TEPHROSIA CONSONARIA.

SQUARE SPOT.

Plate XXI. *Figure* 1.

This insect measures an inch and a half or a little over in width.

Male: fore wings greyish brown-white dusted with pale brownish, the first line brownish and slightly waved, the second line incomplete, blackish, and slightly waved; between them is an indistinct central line of pale brownish, and the outer margin is dotted. Hind wings greyish brown-white, crossed with brownish streaks.

Localities for this species are Faversham, Worthing, Pembury, Halton, Brighton, Birch Wood, Worcester, Bowness, Wavendon, Stowmarket, Dursley, Black Park, Lyndhurst, Barnstaple.

The situations where it is found are woods.

The perfect insect appears the beginning of May, and in June and July.

The caterpillar is reddish-grey, with several black lines along it, and two small prominences on the twelfth segment.

The date of the appearance of the caterpillar is in September.

It feeds on the beech.

The chrysalis is found among moss.

TEPHROSIA CREPUSCULARIA.

SMALL ENGRAILED.

Plate XXI. *Figure* 2.

This insect, which is very variable, some being much darker and smaller than others, measures from a little under an inch and a half to nearly one inch and three quarters in width.

Male: fore wings pale greyish, more or less tinged with a dull yellowish tint and freckled with brownish: the first line brown, sometimes only traceable by three brown or blackish-brown spots; the second line black, slightly waved, and slanting inwards to rather within the middle of the lower margin; third line blackish-brown, waved

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and indented, and frequently much interrupted. The outer margin is dotted with black. Hind wings pale grey crossed with two or three black streaks slightly waved, and bordered within the outer margin with a waved line of dots.

Localities for this species are Stockton near York, Scarborough, Darlington, Brighton, Eltham, Tenterden, Lewes, Bristol, Manchester, Faversham, Horndean, West Looe, Newnham, Lyndhurst, Pembury, Worthing, Swinhope, Halton, Glasgow, Plymouth.

The situations where it is found are fir and other woods, where it is to be seen at rest on the trunks of trees in the day-time.

The perfect insect appears at the end of March, and in April, May, June, and July.

The caterpillar is reddish or buff-black, the back darker than the sides, which have a black line along them, and on the sixth and seventh segment is a black cross line.

The date of the appearance of the caterpillar is in August and September.

It feeds on the larch, the willow, the poplar, the elm, and the alder.

The chrysalis is found among moss.

TEPHROSIA EXTERSARIA.

BRINDLED WHITE SPOT.

Plate XXI. *Figure* 3.

This insect measures from a little over one inch and a quarter to nearly an inch and a half in expanse.

Male: fore wings whitish-grey much speckled and sprinkled with brown, the first line double and blackish-brown; second line black, with a long pale whitish patch at its lower end, and in some specimens forming a pale central shade, the two enclosing a central line also brownish and curved, the central spot blackish-brown; and the third line with a smaller whitish patch beyond its middle part. Hind wings whitish-grey, with a black line followed by a brown shade running partly across from the outer edge, and another thin waved line along the outer margin.

Localities for this species are Stowe Wood, Darenth Wood, Lewes, Pembury, Black Park, Brighton, Worthing, Stowmarket, West Looe, Worcester, Bristol, and Lyndhurst in the New Forest.

The situations where it is found are woods.

The perfect insect appears in June and July.

The caterpillar is pale grey, clouded with reddish-brown.

The date of the appearance of the caterpillar is in September.

It feeds on the birch.

The chrysalis is found among moss.

TEPHROSIA PUNCTULARIA.

GREY BIRCH MOTH.

Plate XXI. *Figure* 4.

This insect measures from an inch to an inch and a quarter in expanse.

Male: fore wings pale grey speckled with darker grey. The first line is blackish-brown springing from a distinct

blackish spot on the upper margin; second line also blackish-brown and coming from a blackish spot; central line blackish-brown most distinct at the upper margin; but all of these are frequently only partially continued across the wing. Hind wings pale grey crossed by a faint dusky line, and with a few dusky marks.

Localities for this species are York, Scarborough, Bristol, Pembury, Lyndhurst, Plymouth, Worthing, Brighton, Newnham, Lewes, Manchester.

The situations where it is found are woods.

The perfect insect appears in May and the early part of June.

The caterpillar is of a reddish colour, with white spots on the second, third, and fourth segments, and larger marks on the others.

The date of the appearance of the caterpillar is in June.

It feeds on the birch and the alder.

The chrysalis is found among moss.

GNOPHOS OBSCURARIA.

DARK ANNULET. BROWN ANNULET.

Plate XXI. *Figure* 5.

This insect, some individuals of which are much darker than others, measures from a little over an inch and a quarter to an inch and a half in width.

Male: fore wings blackish-grey; the first line a darker shade and nearly straight; second line also darker, a little waved and much jagged; central line only partly continued. Hind wings blackish-grey, with a central dark spot pale in the middle.

Localities for this species are Scarborough, Edinburgh, West Looe, Brighton, Farnham, Barnstaple, Birkenhead, Parley Heath, Lyndhurst, the New Forest, Lewes, Ventnor, Charmouth, Portland, Lanferras, Bath, Exeter, Plymouth, Bristol, Matlock.

The situations where it is found are hedge sides, &c.

The perfect insect appears in July and August.

The caterpillar is dull grey with a whitish line along the back on the front of each segment, and edged with dark grey. There are two small prominences on the twelfth segment.

The date of the appearance of the caterpillar is in April and May.

It feeds on the Rock Rose *(Heliathemum vulgare)*, the Salad Burnet *(Poterium sanguisorba)*, and different grasses, and hides itself during the day-time under stones, &c.

The chrysalis is found under the ground.

DASYDIA OBFUSCARIA.

Plate XXI. *Figure* 6.

This insect measures from an inch and a quarter to an inch and three quarters in width.

Male: fore wings dark grey with a tinge of green; the first line is darker grey and slightly bent; second line dark grey slightly bent and jagged on the edge; the central spot also dark grey, but paler in the middle.

Localities for this species are Oban, Inverness, Inver, Sutherland, Arran, Rannoch, and Ardrossan.

The perfect insect appears in July and August.

The caterpillar is bluish-grey, with a slanted dark grey streak on each segment.

The date of the appearance of the caterpillar is in May?

It feeds on the broom (*Genista tinctoria*), the vetch (*Vicia Cracca*), &c.

PSODOS TREPIDARIA.

BLACK MOUNTAIN MOTH.

Plate XXI. *Figure* 7.

This insect measures from a little under an inch to about an inch in width.

Male: fore wings dark blackish-grey glossed with dull bronze, the first line brownish-black and jagged; the second line also brownish-black waved and much narrowed inwards towards the base of the former; central shade darker than the remainder; central spot black and placed near the upper margin, the outer margin bordered with a thin black line. Hind wings blackish-grey, with indications of spots and two cross darker lines, and a slender line of black round the outer margin, bordered again with a pale edge.

Localities for this species are at and about Rannoch.

The situations where it is found are the highest parts of mountains.

The perfect insect appears at the end of June and in July.

MNIOPHILA CINERARIA.

Plate XXI. *Figure* 8.

This insect measures rather under an inch in expanse.

Male: fore wings grey; the first line dark grey and bent; second line also rather dark grey and jagged; central spot dark grey. Hind wings grey; the antennæ are pectinated.

A locality for this species is Tenby.

The perfect insect appears in July.

The caterpillar is variously dull greenish, grey, or whitish grey, with a paler line along the back, widened out on each segment, and followed underneath it by another blackish line.

The date of the appearance of the caterpillar is in May and June.

It feeds on lichens.

The chrysalis is wrapped in a web among lichens.

BOLETOBIDÆ.

BOLETOBIA FULIGINARIA.

WAVED BLACK.

Plate XXI. *Figure* 9.

This insect measures an inch or a little over in expanse.

Male: fore wings blackish; the first line yellowish and curved; second line yellow, curved, and indented, with a

pale yellowish patch on its inner side; third line yellowish and indented, central spot black. The antennæ are pectinated.

Localities for this species are London and Chelsea.

The situations where it is found are buildings in which there is old timber.

The perfect insect appears in June.

The caterpillar is dull blackish, with raised reddish spots covered with bristles.

The date of the appearance of the caterpillar is in July.

It feeds on the lichens and fungi which grow on decayed wood.

The chrysalis is found under the ground.

GEOMETRIDÆ.

PSEUDOPTERPNA CYTISARIA.

GRASS EMERALD.

Plate XXI. *Figure* 10.

This insect measures from an inch and a quarter to nearly one inch and three quarters in expanse.

Male: pale dull green; the first line dark greenish-grey, nearly straight across, but somewhat waved; second line also dark greenish-grey, indented and bent; third line whitish, but sometimes hardly visible; central spot dull green, but very indistinct. Hind wings paler dull green, crossed with a whitish line behind a darker one, following some way within the outer margin. The antennæ are slightly pectinated.

Localities for this species are Stockton and other places near York, Ipswich, Dorking, Exeter, Brighton, the Isle of Wight, Cambridge, Birkenhead, Kingsbury, Lynton, Bristol, Lyndhurst, Worthing, Pembury, Darlington, West Looe, Manchester, Luss, Barnstaple.

The situations where it is found are heaths and commons.

The perfect insect appears in July.

The caterpillar is rather dark green, with a darker line along the back, a paler one below it, and one on the sides of a pale pink colour.

The date of the appearance of the caterpillar is in June.

It feeds on the broom (*Genista tinctoria* and *Genista anglica*).

The chrysalis is surrounded with a web placed among leaves.

GEOMETRA PAPILIONARIA.

LARGE EMERALD.

Plate XXI. *Figure* 11.

This very fine insect measures from a little under two inches to more than two and a quarter across.

Male: fore wings green; the first line which is waved is whitish but indistinct; second line also whitish, indented, and curved, but not extending to the upper margin; third line indicated by a very faint row of white spots. Hind wings green, crossed with a dotted whitish line, followed by another of dots of the same colour. The antennæ are slightly pectinated

Localities for this species are Selby, Buttercrambe Moor, Huddersfield, Scarborough, York, Plymouth, Nunburnholme, Charmouth, Barnstaple, Sherwood Forest, Carlisle, Cambridge, Birch Wood, Bristol, West Wickham, Lewes, Maidstone, Brighton, Killarney, Exeter, Dorking, Lyndhurst, Newnham, Horndean, Preston, Manchester, Pembury, Malvern, Stowmarket, Northleach, Tenterden, Sudbury, Worthing.

The situations where it is found are woods and lanes.

The perfect insect appears in July.

The caterpillar is green with prominences tipped with red on the second, sixth, seventh, eighth, and ninth segments, a red line on the back on the tenth, eleventh, and twelfth, and a yellowish line on the sides.

The date of the appearance of the caterpillar is in May and June, August and September.

It feeds on the nut, the birch, the beech, &c.

The chrysalis is enclosed in a cocoon among leaves.

GEOMETRA SMARAGDARIA.

ESSEX EMERALD.

Plate XXII. *Figure* 1.

This insect measures from a little over an inch and a quarter to one and a half in width.

Male: fore wings rich green inclining to dull yellow on the upper margin; the first line is whitish and waved; second line also white and waved; central spot white. Hind wings green, paler at the inner corner. The antennæ are slightly pectinated.

Localities for this species are Southchurch, Southend, St. Osyth, and Deal.

The perfect insect appears in July.

The caterpillar is greyish-brown, with prominences on the fifth, sixth, seventh, eighth, and ninth segments.

The date of the appearance of the caterpillar is at the end of May and beginning of June.

The chrysalis is placed in a cocoon among moss.

NEMORIA VIRIDATA.

SMALL GRASS EMERALD.

Plate XXII. *Figure* 2.

This insect measures from a little over three quarters of an inch to about one inch in expanse.

Male: fore wings green sometimes more or less tinged with yellowish; the first line is whitish but indistinct and curved; second line nearly straight and whitish.

Localities for this species are Morecambe, Lancaster, Worcester, Lyndhurst in the New Forest, and Barnstaple.

The perfect insect appears in May and June.

The caterpillar is dull reddish-yellow with a darker line along the back, and two points on the top of the second segment.

The date of the appearance of the caterpillar is in September.

It feeds on the bramble and the whitethorn.

The chrysalis is found between leaves.

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IODIS VERNARIA.

SMALL EMERALD.

Plate XXII. *Figure* 3.

This insect measures from a little over an inch and a quarter to about an inch and a half in width.

Male: fore wings pale green, the first line whitish but rather indistinct and curved, second line also whitish, nearly straight, but a little bent near the upper margin. Hind wings with one slender white streak bent in the middle near the outer part. The antennæ are pectinated.

Localities for this species are Black Park, Brighton, Lewes, Stowmarket, Bristol, Sudbury, Newnham, Wavendon, Worthing, Cambridge.

The perfect insect appears in July.

The caterpillar is green, with a white line on either side of the back, and another on the sides.

The date of the appearance of the caterpillar is in September.

It feeds on the clematis *(Clematis vitalba)*.

The chrysalis is placed in a cocoon among leaves.

IODIS LACTEARIA.

LEAST EMERALD.

Plate XXII. *Figure* 4

This insect measures from a little under an inch to an inch in width.

Male: fore wings most delicate very pale green; first line whitish but scarcely visible; second line also whitish

and equally indistinct. Hind wings most delicate very pale green.

Localities for this species are York, Buttercrambe Moor, Scarborough, Huddersfield, Glasgow, Cambridge, Exeter, Manchester, Faversham, Barnstaple, Lower Guiting, Blean Wood near Canterbury, Halton, Brighton, Stowmarket, Charlton, Newnham, Plymouth, Bristol, Tenterden, Lewes, Worthing, Darlington, Lyndhurst, Birkenhead, Kingsbury.

The situations where it is found are woods and hedge sides.

The perfect insect appears at the end of May, in June, and the beginning of July.

The caterpillar is yellowish-green, with a reddish-brown line along the back interrupted on each segment; head reddish-brown.

The date of the appearance of the caterpillar is in August and September.

It feeds on the birch.

The chrysalis is placed in a cocoon among leaves.

PHORODESMA BAJULARIA.

BLOTCHED EMERALD.

Plate XXII. *Figure* 5.

This insect measures from a little over an inch to one and a quarter across.

Male: fore wings green; the first line is waved and whitish; second line also whitish and waved ending in a conspicuous blot of very pale dull yellowish-brown, surrounding a rather pale reddish-brown mark; the upper margin is pale dull yellowish-brown. Hind wings green, edged

with a pale yellowish-brown indented border enlarged into a blot at the outer and lower corners. The antennæ are slightly pectinated.

Localities for this species are York, Nunburnholme, Linwood near Market Rasen, Black Park, Bromsgrove, Brighton, Bristol, Stowmarket, Pembury, Arundel, Worcester, Worthing, Tenterden, Lyndhurst, and the New Forest.

The situations where it is found are woods.

The perfect insect appears in July.

The caterpillar is pale brown, with prominences of a lighter shade on the fifth, sixth, seventh, eighth, and ninth segments. The head dull reddish.

The date of the appearance of the caterpillar is in May.

It feeds on the oak.

The chrysalis is enclosed in a slight web attached to leaves, lichens, &c.

HEMITHEA THYMIARIA.

COMMON EMERALD.

Plate XXII. *Figure* 6.

This insect measures from a little over an inch to one and a quarter across.

Male: fore wings rather dull green; the first line is whitish and bent; second line also whitish, bent, and waved, and lined with a darker shade of green on its inside,—the fringes pale dull yellowish and indented or nicked with pale dull reddish-brown, forming a line of small spots. Hind wings dull green, crossed with a waved

whitish streak,—the fringes pale dull yellowish, indented with pale dull reddish-brown. The antennæ are slightly pectinated.

Localities for this species are York, Lyndhurst, Barnstaple, Charlton, Kingsbury, Bristol, Poynings, Brighton, Exeter, Lower Guiting, West Rasen, Halton, Worthing, Nunburnholme, Stowmarket, Plymouth, Newnham, Pembury, Manchester, Lewes, Birkenhead, Cambridge, &c.

The situations where it is found are woods and hedge sides.

The perfect insect appears in June and July.

The caterpillar is yellowish-green; the first, second, and third segments brownish, the fifth, sixth, seventh, eighth, ninth, tenth, eleventh, and twelfth, with a black spot; the head brownish.

The date of the appearance of the caterpillar is in May.

It feeds on the oak and the whitethorn.

The chrysalis is enclosed in a web among leaves.

EPHYRIDÆ.

EPHYRA PORATA.

FALSE MOCHA.

Plate XXII. *Figure* 7.

This insect, which is very variable in its colour and markings, measures a little over an inch in expanse.

Male: fore wings pale reddish-buff freckled with dark grey and reddish-brown; the first line, which is composed of a row of dark grey dots, is slightly bent; second line

also a row of dots and waved; central spot white, surrounded by a black rim, outside which the central shade is pale grey. Hind wings pale reddish-buff with a streak of dark dots near the inner corner, a white central spot surrounded with dusky, and followed by a curved purple brown bar, succeeded by another curved row of dark dots, and the outer corner often shaded with purple.

Localities for this species are Dulwich, Barnstaple, Faversham, Manchester, Poynings, Brighton, Tenterden, Ipswich, Lewes, Bognor, Pembury, Exeter, Bristol.

The situations where it is found are woods.

The perfect insect appears in May and August.

The caterpillar, which is very variable, is dull green-brownish, or yellowish-red, more or less mottled, with the last segment red; head red.

The date of the appearance of the caterpillar is in June and September.

It feeds on the oak and other forest trees.

The chrysalis is affixed, like those of the butterflies, by a thread of silk at the tail, and another round the body.

EPHYRA PUNCTARIA.

Plate XXII. *Figure* 8.

This insect, which is another variable one in colour and markings, measures a little over an inch in width.

Male: fore wings pale dull reddish-buff thickly dusted with reddish-brown and dusky specks and with an indistinct row of dots near the inner corner; the first line only

a few dots; the central line slightly waved and dusky reddish-brown; third line also somewhat waved, composed in like manner of a row of faint dots; the border of the wings a slight dark line. Hind wings pale dull reddish-buff crossed by a continuation, when the wings are extended, of the central reddish-brown line, with a few faint dots, and within the fringe is a thin dark line.

Localities for this species are York, Brighton, Birkenhead, Tenterden, Worthing, Exeter, Stowmarket, Bristol, Cambridge, Pembury, Manchester, Newnham, Lyndhurst, Lewes.

The situations where it is found are woods.

The perfect insect appears at the end of May and in August.

The caterpillar is green or yellowish-green, crossed with slanting pale yellow bands.

The date of the appearance of the caterpillar is in June and September.

It feeds on the oak.

The chrysalis is attached by a thread at the tail, and another round the body.

EPHYRA TRILINEARIA.

CLAY TRIPLE LINE.

Plate XXII. *Figure* 9.

This insect measures rather more than one inch across.

Male: fore wings dull reddish-yellow; the first line is pale grey, dotted with a darker dusky colour and somewhat

bent; second line also pale grey and slightly bent; central line, which is broader than the others, dark reddish-grey, and placed nearer the second line than the first; central spot white, but not very distinct. Hind wings dull reddish-yellow crossed by three lines of a dark dusky colour.

Localities for this species are Scarborough, Newnham, Lewes, Brighton, Black Park, Dursley, Norbury Park, Manchester, Pembury, Lyndhurst, Halton.

The situations where it is found are woods.

The perfect insect appears in May and August.

The caterpillar is of a general reddish-brown colour, with yellow markings.

The date of the appearance of the caterpillar is in June (?) and September.

It feeds on the beech.

The chrysalis is affixed by a thread at the tail, and another round the body.

EPHYRA OMICRONARIA.

MOCHA.

Plate XXII. *Figure* 10.

This pretty insect measures from a little over three quarters of an inch to about an inch in expanse.

Male: fore wings very pale yellowish or buff-white; the first line, which is rather dark yellowish-brown, is much waved; second line also brown, waved, and indented, with a broad border of yellowish-brown; third line a paler shade of the same; central spot a ring of yellowish-brown like an *O*, whence the specific name. Hind wings pale yellowish or buff-white, crossed near the inner corner by a

brown line, on the middle by a broad band of the same, followed by a third and rather paler one, and this by a line within the outer margin; central spot a ring of brown on the inner side of, and adjoining the broad band.

Localities for this species are York, Bristol, Pembury, Lewes, Stowmarket, Alfred's Well and the Ran-Dan Woods near Bromsgrove, Halton, Barnstaple, Arundel, Brighton, Sudbury, Cambridge, Manchester, Lyndhurst, Lower Guiting, Tenterden, Worthing.

The situations where it is found are woods.

The perfect insect appears in May and August.

The caterpillar is green, somewhat mottled, with a pale yellow line on the back, and another on each side beneath it.

The date of the appearance of the caterpillar is in June and September.

It feeds on the maple.

The chrysalis is attached by a thread at the tail, and another placed round the body.

EPHYRA ORBICULARIA.

DINGY MOCHA.

Plate XXII. *Figure* 11.

This insect measures an inch or a little over in expanse.

Male: fore wings rather pale greyish-brown, mottled with paler grey; first line waved and of a darker brown; second line of like colour sweeping inwards and then bent; third line a series of darker dots, followed by a shade of the same within the outer margin; central spot a rim of brown. Hind wings rather pale greyish brown mottled

with paler, and crossed by a line of rather darker dots; central spot greyish white.

Localities for this species are Lyndhurst, Worcester, Tenterden, Worthing, Lewes, and Brighton.

The situations where it is found are woods.

The perfect insect appears in May and August.

The caterpillar is yellowish-green, with a yellowish line along the back edged with a darker shade, and a like line below it on each side.

The date of the appearance of the caterpillar is in June and September.

It feeds on the alder and the sallow.

The chrysalis is affixed by a thread at the tail, and another encircling the body.

EPHYRA PENDULARIA.

BIRCH MOCHA.

Plate XXII. *Figure* 12.

This insect measures from a little under to a little over an inch in expanse.

Male: fore wings whitish-grey, with a very faint tinge of pink; the first line is somewhat waved, reddish and scarcely continuous; second line waved, sweeping inwards, and only composed of small red dots; central spot white, surrounded by a rim of red. Hind wings pale whitish grey, crossed by a row of minute dark dots, and with a central spot high up of white surrounded by a rim of dark red.

Localities for this species are York, Buttercrambe Moor, Brighton, Faversham, Worthing, Pembury, Lyndhurst, Bristol, Exeter, Tenterden, Worcester, Lewes, Black Park, Ipswich.

The situations where it is found are woods.

The perfect insect appears in May and August.

The caterpillar is green, yellowish-green, or brown, with a paler line on the sides; the head reddish.

The date of the appearance of the caterpillar is in June and September.

It feeds on the birch.

The chrysalis is attached by a thread at the tail, and another girdling the body.

ACIDALIDÆ.

HYRIA AURORARIA.

PURPLE AND GOLD.

Plate XXII. *Figure* 13.

This insect measures from a little under three quarters of an inch to about that width.

Male: fore wings lilac-purple red with an orange patch in the centre, more or less extending to the inner corner; the first line is purple-red, in some specimens indistinct; second line purple-red, wide, and placed near the outer margin. Hind wings purple-red in the middle, with a yellow spot, orange-yellow about the inner corner and along the outer and lower margin.

Localities for this species are Thorne Moor, Cambridge, Croydon, Horning, Chat Moss, Manchester, Lyndhurst, Preston, Bristol, Killarney.

The situations where it is found are heaths and marshy places.

The perfect insect appears in July.

The caterpillar is yellowish-grey, with a pale streak of spots along the back, and paler ones below it on the sides.

The date of the appearance of the caterpillar is in June.

It feeds on the plantain (*Plantago lanceolata*).

The chrysalis occurs under the ground.

ASTHENA LUTEATA.

SMALL YELLOW WAVE.

Plate XXIII. *Figure* 1.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings rather deep yellow; first line darker yellow, which colour is spread to the inner corner; second line, a double one, also darker yellow; third line of similar colour; central spot black. Hind wings rather deep yellow, crossed by three or four lines of darker yellow, and a dark fulvous central dot.

Localities for this species are York, Scarborough, Huddersfield, Dorking, Barnstaple, Sanderstead, Darlington, Brighton, Kingsbury, Worcester, Lower Guiting, Preston, Cambridge, Worthing, Killarney, Tenterden, Exeter, Halton, Bristol, Lewes, Newnham, Chat Moss, Manchester, Pembury, Newcastle-on-Tyne.

The situations where it is found are woods.

The perfect insect appears at the end of May and in June.

The chrysalis is found between leaves or among moss.

ASTHENA CANDIDATA.

SMALL WHITE WAVE.

Plate XXIII. *Figure* 2.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings white, with several very pale grey waved lines across, the two nearest together being in the middle; the outer margin dotted with black; central spot grey but indistinct. Hind wings also white, crossed with very pale grey waved lines.

Localities for this species are York, Huddersfield, Scarborough, Tenterden, Faversham, Pembury, Stowmarket, Kingsbury, Cambridge, Barnstaple, Worthing, Brighton, Manchester, Worcester, Darlington, Lyndhurst, Preston, Newnham, Bristol, Lewes, Lower Guiting, Newcastle-on-Tyne.

The situations where it is found are woods.

The perfect insect appears at the end of May, and in June.

The caterpillar is pale green, with a dull red line along on each side below the back, interrupted on the fifth, sixth, seventh, eighth, and ninth segments.

The date of the appearance of the caterpillar is in April.

It feeds on the hornbeam.

The chrysalis is placed among leaves or in moss.

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ASTHENA SYLVATA.

WAVED CARPET.

Plate XXIII. *Figure* 3.

This insect measures a little under an inch in expanse.

Male: fore wings whitish, sprinkled with brown atoms, with numerous waved darker lines across, one streak near the base, and a bar of several across the middle, beyond which is another waved brownish line, and a row of dots on the outside margin: the fringe greyish. Hind wings whitish, crossed with some irregular streaks or lines of brown.

Localities for this species are York, Brighton, West Looe, Bristol, Chat Moss, Manchester, Pembury, Stowe Wood, Lower Guiting, Huddersfield, Preston, Worthing, Darlington, Tenterden, Worcester, Newcastle-on-Tyne.

The perfect insect appears at the end of May, and is out in June and July.

The caterpillar is of a lilac colour, changing to green on the sides of some of the segments, the second, third, fourth, and two hindmost; while above the sides of the sixth, seventh, and eighth segments are black spots surrounded with white, and a slanting streak of white on the sides.

The date of the appearance of the caterpillar is in August.

It feeds on the alder.

The chrysalis is placed among leaves or in moss.

ASTHENA BLOMERARIA.

CAPTAIN BLOMER'S RIVULET.

Plate XXIII. *Figure* 4.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings dull greyish-white, with a pale bluish tinge; second line blackish and bent, with a dull orange-yellowish patch at the outer corner, a darker line on its inside, and a few darker marks and specks below it and within the fringe. Hind wings dull greyish-white, and two darker greyish bands, and darker on and within the border.

Localities for this species are Pickering, Scarborough, Nunburnholme, Castle Eden Dene, Chenies, Lower Guiting, Newnham, Malvern, Preston, Newcastle-on-Tyne.

The situations where it is found are woods and woody places.

The perfect insect appears in June and July.

EUPISTERIA HEPARARIA.

DINGY SHELL.

Plate XXIII. *Figure* 5.

This insect measures from a little under to about an inch in width.

Male: fore wings yellowish-brown dusted with greyish-brown; dull yellowish on the upper margin, and almost entirely brown on the outer part, as indeed is sometimes

the whole of the wing. The first line is darker brown; the second line is darker brown, and both near together; central line darker brown. Hind wings dull brown, the margin darkest.

Localities for this species are York, Birkenhead, Lewes, Manchester, Faversham, Brighton, Newnham, Worcester, Newcastle-on-Tyne, Chatham, Lyndhurst, Huddersfield, Darlington, Tenterden, Stowmarket, Pembury, Bristol, Cambridge, Lower Guiting.

The situations where it is found are woods and lanes.

The perfect insect appears in June and July.

The caterpillar is yellowish-green, with a pale yellow line along the back, and another on the sides, with yellow spots and streaks on the segments.

The date of the appearance of the caterpillar is in September.

It feeds on the alder.

The chrysalis is enclosed in a slight cocoon, laid on the surface of the ground.

VENUSIA CAMBRICARIA.

WELSH WAVE.

Plate XXIII. *Figure* 6.

This insect measures from an inch to nearly an inch and a quarter in expanse.

Male: fore wings pale clear greyish-white, with a black line a little within the upper margin running through the cross lines. The first line is black, with a paler one bordering it, the two filled up with a dark shade and curved, with three black spots; the second line, also a double one and filled up with a dark shade, much waved and black,

with several enlarged black spots, the middle one extended into a small v; the third line is paler in colour, and much indented in waves. Hind wings white, sometimes with a few slight bands, or short and slender dark streaks running into the inner margin. The antennæ are slightly pectinated.

Localities for this species are Manchester, Cardigan, Sheffield, Huddersfield, Stowmarket, Bristol, Darlington, Killarney, Arran, Ben Nevis, Scarborough, Carlisle.

The perfect insect appears at the end of June, and in July.

ACIDALIA OCHRARIA.

Plate XXIII. *Figure* 7.

This insect measures from about three quarters of an inch to a little over that measurement in expanse.

Male: fore wings dark dull yellowish; the first line is darker but indistinct; second line also darker; central line the same, central spot brown. Hind wings also dull yellowish, with a central brown dot.

Localities for this species are Southend, Deal.

ACIDALIA RUBRICARIA.

Plate XXIII. *Figure* 8.

This insect measures a little under an inch in expanse.

Male: fore wings dull brownish-red. The first line is nearly straight and dark brown; second line also nearly

straight and dark brown; central shade dull brown. Hind wings with two dull streaks across.

Localities for this species are York, Brighton, and North Foreland Meadow near Dover.

The perfect insect appears in June.

ACIDALIA SCUTULARIA.

SINGLE DOTTED WAVE.

Plate XXIII. *Figure* 9.

This insect measures from a little under to a little over three quarters of an inch in width.

Male: fore wings greyish-white with a comparatively large patch of dark grey at the lower corner. The first line is black and curved, with, but in some specimens only, a row, or part of a row, of dots; second line black and curved, and also sometimes only indicated by a few dots; third line waved and blackish; central shade, if visible at all, pale grey; central spot black. Hind wings also greyish-white, with a pale dusky bent line across near the inner corner, a dark line of the same following the outer margin some way within it, the space between being also dusky, and a black spot at its inner end; central spot black.

Localities for this species are York, Scarborough, Bristol, Newcastle-on-Tyne, Barnstaple, Humberstone, Lewes, Faversham, Worcester, Glasgow, Lower Guiting, Halton, Darlington, Stowmarket, Worthing, Tenterden, Brighton, Manchester, Newnham, Birkenhead, Cambridge, Kingsbury, Lyndhurst.

The perfect insect appears in June and July.

The caterpillar is pale brown, with darker slanting streaks on the fifth, sixth, seventh, eighth, ninth, tenth, and eleventh segments.

The date of the appearance of the caterpillar is in May.

The chrysalis occurs under the ground.

ACIDALIA BISETARIA.

SMALL FAN-FOOT WAVE.

Plate XXIII. *Figure* 10.

This insect measures from about three quarters of an inch to not quite an inch in expanse.

Male: fore wings pale yellowish-grey, dusted with grey. The first line is indistinct; second line blackish and waved, bordered by a conspicuous grey band; central line indistinct; central spot black. Hind wings also pale yellowish-grey, with a dusty line across near the inner corner; a dusky band some way within the outer margin, within which is another of the same; central spot black; the outer margin with a row of brown dots.

Localities for this species, which is plentifully distributed throughout the country, are Poynings, Barnstaple, West Looe, Worcester, Isle of Man.

The perfect insect appears in June and July?

The caterpillar is greyish-brown, with angular marks of darker brown along the back, and slanting stripes of the same on the sides.

The date of the appearance of the caterpillar is in August and April.

It feeds on the dandelion (*Leontodon taraxicum*).

The chrysalis occurs below the ground.

ACIDALIA TRIGEMINARIA.

TREBLE BROWN SPOT.

Plate XXIII. *Figure* 11.

This insect measures a little over three quarters of an inch in expanse.

Male: fore wings dull whitish-yellow, dark grey at the inner corner. The second line is dark grey and waved, followed by a dark band of grey interrupted above the middle; central line indistinct; central spot black. Hind wings sometimes plain, but sometimes with a dusky streak within the margin.

Localities for this species are Bristol, Tenterden, Exeter, Darenth Wood, Lyndhurst, Pembury, Ipswich, Renfrew.

The perfect insect appears in July.

ACIDALIA CONTIGUARIA.

Plate XXIII. *Figure* 12.

This insect measures a little over three quarters of an inch across.

Male: fore wings pale greyish. The first line is dark brown; second line dark brown and waved; central line brown; central spot black.

Localities for this species are near Conway, North Wales.

The perfect insect appears in July.

ACIDALIA RUSTICARIA.

Plate XXIII. *Figure* 13.

This insect measures a little under three quarters of an inch in expanse

Male: fore wings pale greyish-white, with a greyish-brown patch near the inner corner on the upper margin, and the outer margin clouded with pale dull yellowish-grey; central shade greyish-brown; central spot black.

Localities for this species are the Isle of Portland, Lewisham, and Northfleet.

The perfect insect appears in July.

ACIDALIA OSSEARIA.

DARK CREAM WAVE.

Plate XXIII. *Figure* 14.

This insect measures about three quarters of an inch in expanse.

Male: fore wings dull yellowish-white, brownish on the upper margin. The first line is blackish and waved, second line also blackish and waved; third line pale brown, followed by another band of the same; outer margin spotted with black; central shade pale brown; central spot black. Hind wings crossed in like manner with three darker waved slender streaks.

Localities for this species are Cambridge, Halton, West Looe, Ventnor, Stowm arket, Lower Guiting, Birkenhead, Exeter, Manchester.

The perfect insect appears at the end of June and in July.

ACIDALIA HOLOSERICARIA.

Plate XXIII. *Figure* 15.

This insect measures from a little under to a little over three quarters of an inch in width.

Male: fore wings pale dull yellowish, darkest on the upper margin. The first line is grey and waved; second line also grey and waved; third line grey, followed by another band of the same; central shade a line of grey; central spot blackish, but seldom occurring.

The perfect insect appears in July.

Localities for this species are near Bristol.

ACIDALIA INCANARIA.

SMALL DUSTY WAVE.

Plate XXIII. *Figure* 16.

This insect measures from a little under to a little over three quarters of an inch across, generally the former size.

Male: front wings whitish frosted with grey. The first line, faintly visible, is dark grey and curved; second line indicated by a row of dark grey dots; central spot very small and greyish-black; the outer margin dusky, extending a little way round the upper margin. Hind wings also greyish-white, with a faint dotted line near the inner corner, and two or three others within the outer margin; central spot black; the outer margin also dusky, clouded

with white and black specks, the margin itself dotted with black.

Localities for this species are York, Worthing, Exeter, Falmouth, Newnham, Waterford, Cambridge, Darlington, Lynton, West Looe, Halton, Bristol, Manchester, Lewes, Birkenhead, Barnstaple, Brighton, Worcester, Kingsbury, Huddersfield, Lower Guiting, Stowmarket, Edinburgh, Renfrew.

The perfect insect appears at the end of June, in July, and the beginning of August.

The caterpillar is pale grey, with a row of dark grey angular-shaped spots along the back.

ACIDALIA CIRCELLARIA.

Plate XXIV. *Figure* 1.

This insect measures about three quarters of an inch across.

Male: fore wings yellowish white, dusted with grey, the outer margin with a series of black spots. The first line is dull greyish-yellow, and bent near the upper margin; second line dull greyish-yellow; central line dull greyish-yellow; central spot black.

Localities for this species are Bowden, Manchester.

The perfect insect appears in June.

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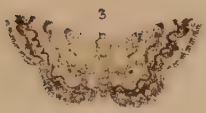
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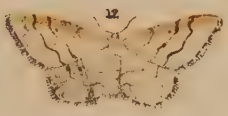
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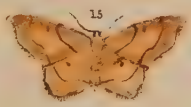
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ACIDALIA ORNARIA.

LACE BORDER.

Plate XXIV. *Figure* 2.

This insect measures about an inch across.

Male: fore wings white. The second line is black, followed by a grey band in which are two tawny blots, one towards the outer, and the other towards the lower corner. Hind wings also with a rather broad border towards the outer corner formed of waved whitish and brownish spots and streaks, and edged with black through which runs a waved white line.

Localities for this species are Box Hill, Faversham, Worcester.

The perfect insect appears at the end of June and the beginning of July.

The caterpillar is grey, with a reddish line on the back and another on the sides below it, and some short dark streaks between them.

The date of the appearance of the caterpillar is in October? and in March.

It feeds on the thyme.

The chrysalis occurs underneath the ground.

ACIDALIA PROMUTARIA.

MULLEIN WAVE.

Plate XXIV. *Figure* 3.

This pretty insect measures from a little under an inch to an inch or rather over in width.

Male: fore wings dull yellowish-white dusted with grey. The first line is rather dark grey and waved; second line also dark grey and waved but less distinct; central shade rather dark grey; central spot black; the outer margin dotted with black. Hind wings also dull yellowish-white, dusky near the inner corner, and with some waved dusky lines across, following the outer margin, which has a row of black dots; central spot blackish.

Localities for this species are Stowmarket, Manchester, Exeter, Brighton, Lyndhurst, Lewes, Bristol, Barnstaple, Newnham, Ardrossan.

The perfect insect appears in July and August.

The caterpillar is dark brownish green, with two rows on each side of greenish-white streaks.

The date of the appearance of the caterpillar is in June.

It feeds on the pink, the nettle, and the yarrow (*Achillæa millefolium*).

The chrysalis is subterranean.

ACIDALIA STRAMINARIA.

DOTTED BORDERED WAVE.

Plate XXIV. *Figure* 4.

This insect measures about three quarters of an inch in expanse.

Male: fore wings pale dull yellowish-grey dotted with blackish, and with a distinct row of black spots on the outer margin. The first line is grey and curved; second lined also grey and waved; central line pale brownish and slightly curved, central spot black. Hind wings also with a distinct row of black dots on the outer margin.

Localities for this species are Lyndhurst, Pembury, and Faversham.

The perfect insect appears in June.

ACIDALIA SUBSERICEARIA.

SATIN WAVE.

Plate XXIV. *Figure* 5.

This insect measures a little over three quarters of an inch to nearly an inch in width.

Male: fore wings whitish, crossed by four or five slightly waved grey lines, and with a row of rather indistinct blackish spots on the outer margin; central spot blackish. Hind wings also crossed by four of the grey lines.

Localities for this species are Worthing, Manchester, Ventnor, Darenth Wood, Lewes, Lyndhurst, Bristol.

The perfect insect appears in June.

ACIDALIA IMMUTARIA.

LESSER CREAM WAVE.

Plate XXIV. *Figure* 6.

This insect measures a little under or a little over an inch in expanse.

Male: fore wings whitish, finely dusted with black, and crossed with fine dull yellowish waved lined. The first

line is dull yellowish and waved, second line dull yellowish and waved, third line also dull yellowish and waved. Hind wings whitish, crossed with several lines of dull yellowish; central spot black and very conspicuous, being larger than that on the fore wings.

Localities for this species are York, Scarborough, Cambridge, Brighton, Manchester, Bristol.

The perfect insect appears in June and July.

ACIDALIA REMUTARIA.

FALSE RIBBON WAVE.

Plate XXIV. *Figure* 7.

This insect measures from a little under an inch and a quarter to that width across.

Male: fore wings whitish or cream white, dusted with brown. The first line is pale brown and waved, second line darker brown and waved, third line a pale brown band within the outer margin in many but not in all specimens; central line pale brown and waved, running into the middle of the first line. Hind wings whitish, crossed in like manner by three or four waved pale brown lines, the central one much larger than the others.

Localities for this species are York, Huddersfield, Brighton, Humberstone, Birkenhead, Tenterden, Worcester, Pembury, Glasgow, Lewes, Lower Guiting, Stowmarket, Bristol, Sudbury, Barnstaple, Cambridge, Kingsbury, Worthing, Scarborough, Manchester, Newnham, Lyndhurst.

The situations where it is found are woods.

The perfect insect appears at the end of May and in the beginning of June.

ACIDALIA FUMARIA.

SMOKY WAVE.

Plate XXIV. *Figure* 8.

This insect measures from a little under to a little over an inch in width.

Male: fore wings dull whitish-yellow, much dusted with brown. The first line is waved and brown, second line waved and brown, third line indistinct brown; central shade indistinct brown.

Localities for this species are Ashburton, Newnham, Manchester, Chat Moss, Arran, Torwood, Stirling, Bristol, Black Forest.

The perfect insect appears in June.

ACIDALIA STRIGILARIA.

SUBANGLED WAVE.

Plate XXIV. *Figure* 9.

This insect measures an inch or a little over in width.

Male: fore wings whitish, clouded with pale brown. The first line is indistinct, second line brown and indented; central line brown and broad; central spot black. Hind wings also with the ordinary dot, and two indistinct bands and a slanting brown one rather beyond the middle, the outer margin with an interrupted brown line.

Localities for this species are Darenth Wood, Carlisle, Folkestone.

The perfect insect appears in June.

The caterpillar is yellowish-grey, with a line of dark grey along the back, and a yellowish-white one on the sides.

The date of the appearance of the caterpillar is in April and May.

It feeds on the hedge wound-wort (*Stachys sylvatica*).

The chrysalis occurs beneath the ground.

ACIDALIA IMITARIA.

SMALL BLOOD VEIN.

Plate XXIV. *Figure* 10.

This insect measures an inch or a little over in width.

Male: fore wings dull reddish-yellow. The first line is pale grey and bent; second line also grey and waved; third line dark grey, slender and waved; central line dark blackish-grey, slanting inwards and followed by a lighter shade; central spot black but indistinct, and in some specimens not appearing at all. Hind wings with a double band before the central dot, and followed by another slender dark and waved streak; the fringe red.

Localities for this species are York, Scarborough, Newnham, Humberstone, Barnstaple, Birkenhead, Lewes, Bristol, Cambridge, Brighton, Darlington, Lower Guiting, Manchester, Halton, Lyndhurst, Pembury, Stowmarket, Worthing, Tenterden, Exeter, Kingsbury.

The perfect insect appears in July and the beginning of August.

ACIDALIA EMUTARIA.

DUSKY WAVE.

Plate XXIV. *Figure* 11.

This insect measures from a little under an inch to an inch in width.

Male: fore wings white, with a faint tinge of pink. The second line only composed of dots of a blackish colour preceded by a band of pale grey; central shade grey but indistinct; central spot grey. Hind wings with a central dot, and an obscure slanting red band across the middle.

Localities for this species are Lyndhurst, the New Forest, St. Osyths, Faversham, Deal.

The perfect insect appears in June.

ACIDALIA AVERSARIA.

RIBBON WAVE.

Plate XXIV. *Figure* 12.

This insect measures from a little over an inch to an inch and a quarter in width.

Male: fore wings dull yellowish-grey, tinged faintly with red and dusted with a darker grey, the outer margin spotted with black. The first line is dark grey, second line dark grey, third line dark grey with a darker grey shade beyond it occasionally; central shade grey on the outer half in some specimens; central spot blackish. Hind wings dull yellowish grey, with a slightly waved

dark grey line across, a little above the middle; another rather more waved one lower down, followed by a fainter third one, the space between being sometimes filled in with a shade of darker grey, the outer margin with a row of minute black dots.

Localities for this species are Brighton, Falmouth, Faversham, Dorking, Worcester, Uppingham, Humberstone, Anstey.

The perfect insect appears in June and July.

The caterpillar is dark brown on the fore part and beyond the middle, the remainder yellowish-grey, with slanting brown lines along the back, and a whitish line on the sides with a white spot above it.

The date of the appearance of the caterpillar is in April and May.

It feeds on the common avens (*Geum urbanum*).

The chrysalis is found under the earth.

ACIDALIA INORNARIA.

PLAIN WAVE.

Plate XXIV. *Figure* 13.

This insect measures from a little over an inch to an inch and a quarter across.

Male: fore wings dull yellowish-grey. The first line is dark grey, second line dark grey; central line grey but indistinct, and not extending to the upper margin; central spot blackish. Hind wings also with a central dark dot.

Localities for this species are Lewes, Tenterden, Faversham, Brighton, Blandford, Chat Moss, Waterford, Manchester, Lyndhurst, Stowe Wood.

The perfect insect appears at the end of June, and in July.

ACIDALIA DEGENERARIA.

PORTLAND RIBBON WAVE.

Plate XXIV. *Figure* 14.

This insect measures an inch or a little over in expanse.

Male: fore wings dull yellowish-grey, with a tinge of red along the upper margin, and near the inner corner. The first line is grey followed by a dark grey band, second line grey; central line grey; central spot blackish but indistinct. Hind wings with the outer portion of the reddish band curved across, and the margin with a brown line.

Localities for this species are Portland and Conway.

The perfect insect appears in July.

ACIDALIA EMARGINARIA.

SCALLOPED DOUBLE LINE.—SMALL SCALLOP.

Plate XXIV. *Figure* 15.

This insect measures a little under an inch in expanse.

Male: fore wings dull reddish yellow, scolloped on the outer edge, whence the name of the moth. The first line

is blackish and curved; second line also blackish and slightly waved; central shade dark grey; central spot blackish. Hind wings dull reddish-yellow, crossed by a slender line near the inner corner, and another clear slender one near the middle, with a conspicuous black spot near the former one.

Localities for this species are York, Stowmarket, Lewes, Lewisham, Bristol, Faversham, Barnstaple, Pembury, Exeter, Newnham, Lyndhurst, Manchester, Kingsbury, Brighton, Halton, Plymouth, Tenterden.

The perfect insect appears in June and July, the beginning.

The caterpillar is dull yellowish, with a broad line along the back, scarcely showing on the front portion.

The date of the appearance of the caterpillar is in July.

It feeds on the bedstraw (*Galium verum*), the convolvulus (*Convolvulus major*).

The chrysalis occurs under the ground.

TIMANDRA AMATARIA.

BLOOD-VEIN.

Plate XXV. *Figure* 1.

This insect measures from a little over an inch to an inch and a quarter in width.

Male: fore wings pale grey, with a streak of deep red running from the outer corner slantwise to the middle of the lower margin. The first line is very indistinct; third line grey and waved, slender and distinct: central spot blackish. Hind wings grey, crossed by a nearly straight

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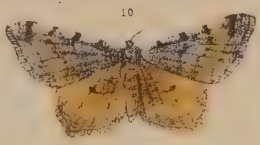
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continuation of the red streak of the fore ones, and followed by a narrow grey streak, also a continuation of that on the fore wings; the outer margin bordered with deep red and pink.

Localities for this species are York, Stowmarket, Cambridge, Wandsworth, Humberstone, Worthing, Lewisham, Pembury, Brighton, Lower Guiting, Charmouth, Exeter, Bromsgrove, Kingsbury, Tenterden, Plymouth, Bristol, Darlington, Faversham, Barnstaple, Dorking, Manchester, Halton, Newnham, Lewes.

The perfect insect appears in June, and July.

The caterpillar is grey, with a white line on the sides but not quite continuous, and another lower down, with slanting streaks between the two on the middle.

The date of the appearance of the caterpillar is in September.

It feeds on the dock *(Rumex pratensis)*, and the knot grass *(Polygonum aviculare)*.

The chrysalis occurs in leaves.

CABERIDÆ.

CABERA PUSARIA.

WHITE WAVE.—COMMON WHITE WAVE.

Plate XXV. *Figure* 2.

This insect measures from a little over an inch to rather more than one and a quarter in width.

Male: fore wings white, very minutely dusted with grey, and crossed by three grey lines placed at equal distances

apart. The first line is slightly curved; second line nearly straight; central line nearly straight. Hind wings white, crossed by an indistinct line of grey near the upper corner, another about the middle, and also in some a third, all slightly waved but all also at times more or less obscure, and not always in the same degree of propinquity.

Localities for this species, which is a very abundant one throughout the country, are Brighton, Humberstone, &c.

The situations where it is found are woods.

The perfect insect appears in May and August.

The caterpillar is variously green speckled with red, or reddish with pale yellow spots on either side below the back.

The date of the appearance of the caterpillar is in June and September.

It feeds on the birch.

The chrysalis is enclosed in a cocoon of earth or in moss.

CABERA ROTUNDARIA.

Plate XXV. *Figure* 3.

This insect measures an inch or a little over in width.

Male: fore wings white, dusted over with grey. The first line is grey and bent near the upper margin, second line also grey and nearly straight. Hind wings white, the central line very indistinct.

Localities for this species are Lyndhurst, Bristol, Tenterden.

The perfect insect appears in May.

The caterpillar is pale green.

The date of the appearance of the caterpillar is in September.

It feeds on the birch.

The chrysalis is enclosed in a case of earth or among moss.

CABERA EXANTHEMARIA.

COMMON WAVE.

Plate XXV. *Figure* 4.

This insect measures an inch to an inch and a quarter in expanse.

Male: fore wings dull white, covered all over with a dusting of dull yellow speck. The first line is dull yellowish-brown and slightly curved, second line dull yellowish-brown and slightly curved and indented, third line also dull yellowish-brown. Hind wings dull white frosted all over with dull yellowish, and crossed by two very faint dull yellowish-brown waved lines.

Localities for this species, which is extensively distributed throughout the country, are Buttercrambe Moor, Humberstone.

The situations where it is found are woods.

The perfect insect appears in May and again in August.

The caterpillar is yellowish-green, the back the darkest, and with reddish-brown spots on it sometimes; on the sides a white line.

The date of the appearance of the caterpillar is in June and September.

It feeds on the sallow.

The chrysalis is placed in an enclosure of earth, or under moss.

CORYCIA TEMERARIA.

CLOUDED SILVER.

Plate XXV. *Figure* 5.

This insect measures an inch or a little over in expanse.

Male: fore wings grey-white, with a narrow grey blot between the inner corner and the middle of the lower margin. The first line is indicated by distinct black dots; second line also a row of black dots; third line black, narrow, and much waved, darkest near the upper margin; central spot black, forming the base of a distinct black patch, running into the upper margin, forming part of the central line; the outer margin with a black patch. Hind wings grey-white, with a central black mark and a rather faintish central line across, the lower and outer margin dotted with small black specks; the fringes white.

Localities for this species are York, Exeter, Faversham, Barnstaple, Birkenhead, Oxford, Newnham, Wisbeach, Preston, Tenterden, Worcester, West Looe, Lyndhurst, Lower Guiting, Brighton, Cambridge, Manchester, Black Park, Killarney, Pembury.

The perfect insect appears in May and June.

The caterpillar is bright green, with a row of red spots along the back; the head also reddish.

It feeds on the sloe or wild plum, and the wild cherry.

The chrysalis is found on the surface of the earth.

CORYCIA TAMINARIA.

WHITE PINION-SPOTTED.

Plate XXV. *Figure* 6.

This insect measures an inch or a little over in expanse.

Male: fore wings delicate white, with two blackish spots sometimes on the upper margin. The first line is a row of dots, but very indistinct; second line also very indistinct; third line waved and blackish; central spot blackish; the outer margin clouded with black. Hind wings delicate white, with one or two very faint lines across of grey, and a very indistinct central spot above the middle.

Localities for this species are York, Lyndhurst, Cambridge, Bowness, Lewes, Exeter, Killarney, Brighton, Worcester, Worthing, Gloucester, and London.

The perfect insect appears in May and June.

ALEUCIS PICTARIA.

Plate XXV. *Figure* 7.

This insect measures an inch or a little over in expanse.

Male: fore wings grey. The first line is dark grey and waved; second line also dark grey and waved; central spot blackish; the outer margin spotted with small black spots. Hind wings paler, and dusted with dark along the lower margin, the fringe having a row of small black dots.

Localities for this species are Charing, (not Charing Cross,) Dartford Heath, Colchester, Lewes.

The perfect insect appears in April.

MACARIDÆ.

MACARIA ALTERNARIA.

SHARP-ANGLED PEACOCK.

Plate XXV. *Figure* 8.

This insect measures from a little over an inch to nearly an inch and a quarter across.

Male: fore wings pale grey. The first line is grey but indistinct; second line grey but indistinct, and followed by a grey band tinged with yellowish-brown towards the upper margin, and with an indistinct dark spot in its middle; central line grey but indistinct.

Localities for this species are Lyndhurst, Brighton, Exeter.

The perfect insect appears in July.

The caterpillar is light green, with three triangular shaped reddish-brown marks on the sides at the middle.

The date of the appearance of the caterpillar is in September.

It feeds on the sallow.

The chrysalis is enclosed in a cocoon placed on the surface of the ground.

MACARIA NOTARIA.

PEACOCK.

Plate XXV. *Figure* 9.

This insect measures from a little over an inch to an inch and a quarter across.

Male: fore wings of a whitish colour, with four chesnut red marks on the upper margin. The first line is grey but indistinct; second line grey but indistinct, with a conspicuous black spot in the middle of it, divided by three yellow lines, and beyond it adjoining the upper margin, a tawny blot or patch; third line also grey and indistinct, forming a band; central line grey but indistinct. Hind wings crossed by a rather broad streak, and another narrow one within it, towards the inner corner; central spot black.

Localities for this species are Exeter, Darenth Wood, Worthing, Tenterden, West Wickham, Brighton, Faversham, Plymouth, Pembury, West Looe, Newnham, Lyndhurst, Killarney.

The caterpillar is dark green on the upper part, with a row of yellowish-brown spots along the back; the sides yellowish-brown.

It feeds on the sallow.

The chrysalis is enclosed in a cocoon on the ground.

MACARIA LITURARIA.

TAWNY BARRED ANGLE.

Plate XXV. *Figure* 10.

This insect measures from a little over an inch to an inch and a quarter across.

Male: fore wings bluish-grey with a tinge of reddish purple, half line rather darkish grey. The first line darker grey but indistinct, darker near the upper margin; second line also darker grey, deepest towards the margin, and beyond it is a broad shade of tawny: central line darker grey but indistinct, the outer corner dotted on the margin with black. Hind wings pale bluish-grey crossed by a faint line of darker grey near the inner corner, followed by another across the middle, and another beyond it, the colour between these two latter being of a dull yellowish grey hue; the outer corner dotted on the margin with black.

Localities for this species are York, Londesborough, Scarborough, Huddersfield, Black Forest, Buttercrambe Moor, Harrogate, Inverary, Worthing, Black Park, Perth, Manchester, Newnham, Exeter, Edinburgh, Pembury, Lower Guiting, Stirling, Brighton, Stowmarket, Bristol, Birkenhead, Wavendon, Bowdon, Lyndhurst.

The situations where it is found are fir plantations and woods.

The perfect insect appears in July, and is often to be seen at rest on the trunks of trees.

The caterpillar is green, with a whitish line along the back, another below it, and another on the sides; the head brown.

The date of the appearance of the caterpillar is in September.

It feeds on the fir.

The chrysalis is placed in a cocoon on the ground.

HALIA WAVARIA.

THE T-MOTH. COMMON V-MOTH.

Plate XXV. *Figure* 11.

This insect measures from a little over an inch to an inch and a quarter in expanse.

Male: fore wings dull grey with a very faint tinge of purple. The first line dull black, and generally only continued as a short dash from the upper margin; second line also dull black, generally short; central line dull black, and lengthened so far as to form, with the two others for the top, the centre of the letter T. There is, in some specimens, a continuation of it in a waved line inwards to the lower margin, on which is a small dark mark near the base of it. Hind wings dull grey, with two or three dark marks on the inner margin, and a blackish central spot.

Localities for this species, which is very common in most places, are York, Charmouth, Nafferton, Nunburnholme, Brighton.

The situations where it is found are gardens.

The perfect insect appears in July.

The caterpillar is pale green, with four waved yellowish white lines along the back, and a pale yellow line on the sides.

The date of the appearance of the caterpillar is in May.

It feeds on the currant and the gooseberry.

The chrysalis occurs beneath the ground.

FIDONIDÆ.

STRENIA CLATHRARIA.

LATTICED HEATH. BARRED HEATH.

Plate XXV. *Figure* 12.

This insect measures an inch or a little over in expanse.

Male: fore wings pale yellowish mingled with grey, cross-barred all over with deep reddish-grey, four lines transverse, and numerous oblong ones. Hind wings pale yellowish, crossed in a similar manner with dark reddish-grey, the transverse lines following the pattern of those in the fore wings when expanded; the fringe white with brown spots.

Localities for this species are Faversham, Chilham, Melbourne near Pocklington, Lewes, Dorking, Exeter, Scarborough, York, Oxford, Cambridge, Darlington, Bristol, Newnham, Preston, Newcastle-on-Tyne, Worthing, Stowmarket, Brighton, Galway, Maghull near Liverpool.

The situations where it is found are open places in woods, and also clover fields.

The perfect insect appears in May, June, and July.

The caterpillar is pale green, with two white streaks edged with darker green along the back, below them another similar line, and on the sides a white one.

The date of the appearance of the caterpillar is in September and May.

It feeds on the medick *(Medicago falcata)* and the santfoin.

The chrysalis occurs under the ground.

PANAGRA PETRARIA.

BROWN SILVER LINE.

Plate XXV. *Figure* 13.

This insect measures a little under to a little over an inch and a quarter.

Male: fore wings silvery-brown. The first line rather dark brown, edged on the outside with a paler shade of silvery-grey, and slightly bent near the upper margin; second line dark brown, edged on the outside with whitish and nearly straight; central spot dark brown. Hind wings silvery-grey, with a partial bar of pale brown.

Localities for this species are York, Stowmarket, Syndale Park, Chilham Park, Perry Wood near Faversham, Lyndhurst, Dorking, Manchester, Lewes, Oxford, Exeter, Pembury, Worthing, Tenterden, Newnham, Birkenhead, Bristol, Brighton.

The perfect insect appears in May and June.

NUMERIA PULVERARIA.

BARRED UMBER.

Plate XXVI. *Figure* 1.

This insect measures an inch and three quarters or a little over in expanse.

Male: fore wings dull yellowish orange-brown, dusted with brown. The first line dark brown and nearly straight; second line dark brown and much bent; central shade darker than the rest of the wing, forming a broad bar; central spot brown, but rather indistinct. Hind wings dull yellowish orange-brown, with a somewhat obsolete dusky bar extending part of the way across.

Localities for this species are York, Newnham, Dulwich, Lewes, Manchester, Perry Wood near Faversham, Worthing, Tenterden, Kingsbury, Newcastle-on-Tyne, Pembury, Exeter, Huddersfield, Scarborough, Darlington, Lower Guiting, Stowmarket, Bristol, Birkenhead, Brighton.

The perfect insect appears at the end of May and in June.

The caterpillar is dull yellowish-brown mottled with brown, a small prominence on the fifth segment, a larger one on the ninth, and two small ones on the tenth, eleventh, and twelfth.

The date of the appearance of the caterpillar is in July.

It feeds on the sallow.

The chrysalis is placed in a cocoon among leaves.

SCODIONIA BELGIARIA.

GREY SCALLOPED BAR.

Plate XXVI. *Figure* 2.

This insect measures from a little under an inch and a quarter to nearly one and a half in expanse.

Male: fore wings grey, with more or less of a tinge of dull yellowish in some. The first line black and nearly

straight, second line curved, and with a broad shade beyond its lower end; central spot black. Hind wings darker grey, with a blackish central spot followed by a dusky slightly waved line. The antennæ are pectinated.

Localities for this species are Glasgow, Huddersfield, Stirling, Newcastle-on-Tyne, White Moss, Chat Moss, Manchester, Arran, Birkenhead, Edinburgh, Lyndhurst in the New Forest.

The situations where it is found are heaths.

The perfect insect appears in June.

The caterpillar is grey ash-coloured, paler on the back, and with short black streaks, a black line on the second, third, and fourth segments, and slight eminences on the hinder ones, that on the twelfth sharp and pointed.

The date of the appearance of the caterpillar is in September and March.

It feeds on the heath (*Calluna vulgaris*).

The chrysalis occurs under the ground.

SELIDOSEMA PLUMARIA.

BORDERED GREY.

Plate XXVI. *Figure* 3.

This insect measures from a little under an inch and a half to that width in expanse.

Male: fore wings grey, darker on the outer margin. The first line dark grey and curved but indistinct: second line pale grey: central shade dark brownish grey. Hind wings also grey, darker on the outer margin.

Localities for this species are Lyndhurst, Manchester, Birkenhead, Preston.

The situations where it is found are sandy heaths.

The perfect insect appears in July.

The caterpillar is brown mottled with black, a black line along the back widened into a spot at each segment.

It feeds on various low plants.

The chrysalis occurs under the ground.

FIDONIA CARBONARIA.

Plate XXVI. *Figure* 4.

This insect measures three quarters of an inch across.

Male: fore wings grey spotted with white. The first line dark grey; second line waved and edged on the outside with white; third line white; central spot black.

Localities for this species are Ingleborough and Perth?

The perfect insect appears in April and May.

It flies in the day-time.

FIDONIA ATOMARIA.

COMMON HEATH.

Plate XXVI. *Figure* 5.

This insect measures from a little under to a little over an inch in width.

Male: fore wings dull yellowish, much variegated with dark brown. The first line brown and curved; second

line also brown, curved, and indented; third line yellowish white; central shade brown. Hind wings dull yellowish, crossed with three bands of dark brown, which also borders the margin.

Female: fore wings whitish, mottled with grey. Hind wings whitish, mottled with grey.

Localities for this common species are Stockton Common near York, Scarborough, Anstey, West Looe, Buttercrambe Moor, Black Park, Stowmarket, Perry Wood near Faversham, Exeter, Pembury, Worthing, Newcastle-on-Tyne, Lyndhurst, Glasgow, Manchester, Lewes, Brighton, Edinburgh, Cambridge, Barnstaple, Halton, Huddersfield, Newnham, Simonswood near Liverpool.

The perfect insect appears in May and June.

The caterpillar is reddish-brown mottled with black, and with a pale line on the sides. It varies much.

The date of the appearance of the caterpillar is in June and September.

It feeds on the black knapweed *(Centaurea nigra)*, and the bird's-foot trefoil *(Lotus corniculatus)*.

The chrysalis occurs underneath the ground.

This moth flies in the day-time.

FIDONIA PINIARIA.

BORDERED WHITE.

Plate XXVI. *Figure* 6.

This insect measures an inch and a quarter or a little over in width.

Male: fore wings white, or yellowish-white on the middle part, with a broad line along it diverging into two

narrower ones, the upper margin black or brownish-black, lower margin brownish-black, outer margin also brownish black in a wide patch. Hind wings white, or yellowish white, with a broad border on the outer margin of black or brownish-black, and two streaks of the same across, the upper one sometimes merged in the darker colour of the base, but black about the inner corner, more or less encroaching on the white portion; the outer edge white or yellowish-white.

Female: fore wings dull yellowish rusty brown; central spot dark brown. Hind wings dull yellowish rusty brown; the edge paler.

Localities for this species are Stockton near York, Buttercrambe Moor, Perry Wood near Faversham, Edinburgh, Torwood, Pitlochrie, Stowmarket, Durham, Guildford, Worthing, Scarborough, Pembury, Lower Guiting, Newcastle-on-Tyne, Holywell, Black Park, Huddersfield, Darlington, Lewes, Bristol, Lyndhurst, Birkenhead, Manchester, Brighton.

The situations where it is found are fir woods and plantations, where it generally flies about the higher parts of the trees in the day-time, and is rather difficult to capture.

The perfect insect appears in May and June.

The caterpillar is green with a white line along the back, a yellowish-white one below it, and a yellow one on the sides.

The date of the appearance of the caterpillar is in August and September.

It feeds on the fir.

The chrysalis occurs under the ground.

This species flies in the day-time.

FIDONIA PINETARIA.

RANNOCH LOOPER.

Plate XXVI. *Figure* 7.

This insect measures from a little under an inch to an inch in expanse.

Male: fore wings yellowish-brown. The first line rather darker brown but indistinct; second line darker brown but indistinct; central line also darker brown but indistinct.

Localities for this species are about Rannoch.

The situations where it is found are fir plantations on the moors.

The perfect insect appears in June and July.

The caterpillar is violet-red, with white lines along the back, and a yellow one on the sides.

The date of the appearance of the caterpillar is in May.

It feeds on the bilberry.

The chrysalis occurs beneath the ground.

This moth flies in the day-time.

FIDONIA CONSPICUARIA.

FROSTED YELLOW.

Plate XXVI. *Figure* 8.

This insect measures from a little under to a little over an inch in width.

Male: fore wings deep dull yellow, slightly orange, minutely dotted over with blackish-brown specks, most so

along the upper margin; the outer margin dusky black. Hind wings also deep yellow bordered with dusky.

Localities for this species are Perry Wood near Faversham, among broom at the top of the hill near the windmill, Stowmarket, Dunkeld, and Bridge of Earn.

The situations where it is found are waste places where broom flourishes.

The perfect insect appears in June and July.

The caterpillar is greenish-brown, with a line of yellow on the sides.

The date of the appearance of the caterpillar is in August, September, and October.

It feeds on the broom.

The chrysalis occurs below the ground.

MINOA EUPHORBIARIA.

DRAB BORDER.

Plate XXVI. *Figure* 9.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings pale greyish-brown, lighter on the edges.

Localities for this species are Darenth Wood, Worcester, Bysing, Lewes, West Wickham, Dursley, Faversham, Newnham, Sudbury, Stowmarket, Halton, Stowe Wood, Brighton, Lyndhurst.

The situations where it is found are woods.

The perfect insect appears in June.

The caterpillar is pale green or blackish-grey, with a darker line along the back and two on the side, one above and the other below, spotted with yellow; the head pale red.

The date of the appearance of the caterpillar is in October.

It feeds on the spurge *(Euphorbia peplis)*.

The chrysalis is inclosed in a small cocoon or case of earth.

SCORIA DEALBARIA.

THE BLACK-VEINED.

Plate XXVI. *Figure* 10.

This insect measures from an inch and a half to nearly one and three quarters in width.

Male: fore wings dull white, streaked with grey veins. Hind wings dull white, streaked with grey veins.

Localities for this species are Faversham, Chilham, Charing, and Lower Guiting.

The perfect insect appears in June.

The chrysalis is enclosed in a cocoon attached to the stem of a plant.

STERRHA SACRARIA.

Plate XXVI. *Figure* 11.

This insect measures a little over an inch in expanse.

Male: fore wings pale sulphur-yellow, with a slanting streak of purple from the outer corner to the middle of the lower margin.

Localities for this species are Brighton, Plymouth.

The perfect insect appears in September—28th.

This moth comes to a light.

ASPILATES STRIGILLARIA.

GRASS WAVE.

Plate XXVII. *Figure* 1.

This insect measures an inch and a quarter or a little over in expanse.

Male: fore wings rather dark grey, freckled over with darker grey. The first line slightly bent; second line also dark grey, and slightly bent and serrated; central line dark grey and slightly curved; central spot dull black but indistinct. Hind wings rather dark grey, crossed with three nearly straight brown bars, the latter two nearest together, also a narrow border of the same.

Localities for this species are York, Manchester, Exeter, Cambridge, Preston, Stirling, Killarney, Tenterden, Barnstaple, Brighton, Lyndhurst, Blean Wood, Canterbury, Chat Moss near Manchester, Kirby near Liverpool.

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The perfect insect appears in June and July.

The caterpillar is grey, the sides tinged with reddish, with dark grey lines along the back, and a white line on each side below it from the fifth segment to the twelfth.

The date of the appearance of the caterpillar is in September and October.

It feeds on the broom.

The chrysalis is enclosed in a cocoon made of earth.

ASPILATES CITRARIA.

YELLOW BELLE-MOTH.

Plate XXVII. *Figure* 2.

This insect measures from a little over an inch to one and a quarter in expanse.

Male: fore wings yellowish, with a slight sprinkling of grey. First line grey, curved, and slightly jagged on the edge; second line also grey, nearly straight, and slightly jagged below the middle; central spot grey. Hind wings also with a central dot, and beyond it an irregular dusky or purple streak, but variable and sometimes entirely absent.

Localities for this species are Plymouth, Deal, and the Isle of Portland.

The perfect insect appears in May and August.

ASPILATES GILVARIA.

STRAW BELLE-MOTH.

Plate XXVII. *Figure* 3.

This insect measures from rather over an inch to nearly an inch and a half in width.

Male: fore wings pale yellowish, slightly freckled with pale brown; third line brownish-grey, slanting from the outer corner to near the lower margin; central spot brownish-grey. Hind wings pale dull yellowish slightly dusted, and with a central brownish-grey dot, and a slight waved band more or less distinct.

Localities for this species are Box Hill, Barnstaple, Ipswich, Exeter, Deal, Dover.

The perfect insect appears in August.

The caterpillar is of a whitish colour, with a faint tinge of pink, a line below the back and another on the sides of reddish-grey, with two projections or spines on the hindmost segment.

The date of the appearance of the caterpillar is in June.

It feeds on the yarrow (*Achillæa millefolium*).

The chrysalis is enclosed in a cocoon of earth.

ZERENIDÆ.

ABRAXAS GROSSULARIARIA.

MAGPIE MOTH. COMMON MAGPIE. LARGE MAGPIE.

Plate XXVII. *Figure* 4.

This insect measures from above an inch and a half to nearly one inch and three quarters in expanse.

Male: fore wings white with a faint tinge of cream colour, the inner corner orange-yellow, spotted and bordered on the outside with black. First line black, but short and wide above, the remainder only indicated by spots; second line a waved line of black, the upper part a row of spots; third line a waved row of black spots bordering on a line of orange-yellow, the outer margin with a row of black spots. Hind wings also white with a faint tinge of cream colour, a row of black spots round the outer margin, another irregular one across the middle, and some more spots between it and the inner corner; thorax yellow, spotted with black; the body yellow, spotted with black on its upper part.

Localities for this species, which is very abundant throughout the country, are York, Charmouth, Queenstown, Nunburnholme, Brighton, Humberstone, Anstey, Worcester, &c., &c.

The situations where it is found are gardens, lanes, and woods.

The perfect insect appears in July and August.

The caterpillar is white dotted with black, and with two large spots of the same along the back on each segment.

The date of the appearance of the caterpillar is in May and June.

It feeds on the currant, the sloe, &c.

This species is a very variable one, some being much lighter than others, and some with more yellow.

ABRAXAS ULMARIA.

SCARCE MAGPIE. YORKSHIRE MAGPIE.

Plate XXVII. *Figure* 5.

This insect measures from a little under an inch and three quarters to that width across.

Male: fore wings delicate white with a rich fulvous and brown patch on the inner corner, a large patch of the same on and beyond the middle of the lower margin, with a paler and smaller one on the middle of the upper margin, and a few small pale ones towards and on the outer margin. Hind wings delicate white with a large rich fulvous and brown patch on the middle of the inner margin from which a curved row of paler spots of the same colour runs across, with another between it and the inner corner; the head is brown, thorax brown, body orange-yellow spotted with brown.

Localities for this species, which though extensively distributed is decidedly local, are York, Newcastle-on-Tyne, Sadborough, Durham, Stowe Wood, Huddersfield, Newnham, Matlock, Darlington, Nunburnholme, Lower Guiting, Warter, Birkenhead, Dorking, Barnstaple, Manchester, Scarborough, Bristol, West Wickham, Witney, Worcester, Birmingham, Snowdon, Llanferias, Holywell, Preston, Whalley.

The situations where it is found are woods and gardens where elm trees grow.

The perfect insect appears in June and July.

The caterpillar is whitish dotted with black, the sides bluish-grey.

The date of the appearance of the caterpillar is in September.

It feeds on the elm.

The chrysalis is attached by a slight web to a stem.

LIGDIA ADUSTARIA.

SCORCHED CARPET.

Plate XXVII. *Figure* 6.

This insect measures an inch or a little over in expanse.

Male: fore wings white or pale cream-white, with a patch of dark purple-brown at the inner corner. Second line bent and waved, followed by a broad bar of purple brown running into the third line, which is only partially continued across, the outer margin is clouded with purple brown. Hind wings dull white with a light brown waved streak across, another fainter one within it, and some dots between it and the inner corner indicating a third; the margin the same colour.

Localities for this species are York, Cambridge, Lewisham, West Looe, Sudbury, Newnham, Tenterden, Charmouth, Killarney, Lower Guiting, Lynton, Faversham, Pembury, Lewes, Plymouth, Brighton, Exeter, Dorking, Stowmarket, Halton, Lyndhurst, Barnstaple, Bristol, Ventnor.

The perfect insect appears in June and July.

The caterpillar is green, with dark yellowish-red spots on the sides of the sixth and seventh segments.

The date of the appearance of the caterpillar is in May.

It feeds on the spindle.

The chrysalis is affixed between leaves.

LOMASPILIS MARGINARIA.

CLOUDED BORDER.

Plate XXVII. *Figure* 7.

This pretty insect, which is very variable in its markings, measures from a little under an inch to about that width in expanse.

Male: fore wings white, the upper margin blackish-brown but not continuous, there being two interventions; central shade blackish-brown but not always continuous, and the margin also blackish-brown. Hind wings white bordered with black, wide, narrow, and again wide, and a bar composed of spots of the same colour across the middle.

Localities for this species, which is plentifully distributed throughout the country, are York, Charmouth, Brighton, Humberstone, Buttercrambe Moor, &c.

The situations where it is found are woods and hedge sides.

The perfect insect appears in May and July.

The caterpillar is dark green, with a narrow line on the back and below it, and a wider one on each side.

The date of the appearance of the caterpillar is in June and also in September.

It feeds on the sallow, &c.

The chrysalis is found beneath the earth.

LIGIDÆ.

PACHYCNEMIA HIPPOCASTANARIA.

CHESNUT CARPET.

Plate XXVII. *Figure* 8.

This insect measures an inch or somewhat over in expanse.

Male: fore wings dull greyish-brown with a faint tinge of purple. The first line, which is rather indistinct, is somewhat bent; second line bent and jagged also, but very indistinct; central shade darker; central spot blackish. Hind wings dull greyish-brown, in some described as with a dark spot in the middle followed by a waved streak or bar.

Localities for this species are the New Forest, West Wickham, Weybridge, and Brighton.

The situations where it is found are hedge sides.

The perfect insect appears in May.

The date of the appearance of the caterpillar is in September.

It feeds on the heath (*Calluna vulgaris*).

The chrysalis occurs underneath the ground.

HYBERNIDÆ.

HYBERNIA RUPICAPRARIA.

EARLY MOTH.

Plate XXVII. *Figure* 9.

This insect measures from a little over an inch to an inch and a quarter in expanse.

Male: fore wings grey-brown; the first line darker brown and curved; second line also dark brown, curved, and waved, followed by a pale grey band, the dark line causing the semblance of a darker central shade; central spot blackish-grey and rather large. Hind wings grey-brown, with a dark greyish spot above the middle, and crossed by a grey-brown bar or streak.

The female is without wings.

Localities for this species are Edinburgh, Glasgow, York, Scarborough, Dunham Park, Tenterden, Plymouth, Manchester, Perth, Newcastle-on-Tyne, Lyndhurst, Stowmarket, Newnham, Birkenhead, Darlington, Huddersfield, Exeter, Brighton, Lewes, Kingsbury, Bristol.

The situations where it is found are hedge sides.

The perfect insect appears in January and February.

The caterpillar is bluish-green, the back pale green, with a white line below it on each side, and the front of each segment blackish-brown or dark green.

The date of the appearance of the caterpillar is in May.

It feeds on the blackthorn, the whitethorn, &c.

The chrysalis occurs beneath the surface of the ground.

HYBERNIA LEUCOPHÆARIA.

SPRING USHER.

Plate XXVII. *Figure* 10.

This insect measures from an inch and a quarter to nearly one and three quarters in expanse.

Male: fore wings greyish-brown, much mottled with brown of two shades. The first line blackish and curved; second line also blackish, much waved, and slanting to the middle of the lower margin, with a broad dark shade on its outer edge extending to traces of a third line; central line rather wide and blackish-brown. Hind wings rather grey, with a brown rather obscure central dot, and parts of the two or three slightly waved lines running outwards from the inner margin.

The female is without wings.

Localities for this species, which is a common one throughout the country, are York, Brighton, Barnstaple, Stowmarket, Dunham Park, &c.

The situations where it is found are oak woods.

The perfect insect appears in February and March.

The caterpillar is yellowish-green, mottled with whitish marks edged with dark green, and a pale yellow line on each side below the back.

The date of the appearance of the caterpillar is in May and June.

It feeds on the oak.

The chrysalis is subterranean.

HYBERNIA AURANTIARIA.

SCARCE USHER.

Plate XXVII. *Figure* 11.

This insect measures from an inch and a half to nearly one and three quarters in width.

Male : fore wings dull yellowish red brown, powdered with a different shade. The first line is brown and nearly straight; second line also brown and slightly curved; central spot brown but rather indistinct; there is a row of brown dots on the outer margin, and sometimes a brown shade within it. Hind wings with a pale orange tinge and a central spot.

The female is without wings.

Localities for this species are York, Scarborough, Glasgow, Worcester, Huddersfield, Exeter, Darlington, Halton, Edinburgh, Brighton, Manchester, Barnstaple, Lyndhurst, Newcastle-on-Tyne, Plymouth, Worthing, Stowmarket, Pembury, Bristol, Lewes, Aigburth near Liverpool.

The perfect insect appears in October and November.

The caterpillar is dull greyish-green, with a white line on each side below the back, the last segment dull yellowish, as are the legs and the head.

The date of the appearance of the caterpillar is in May and June.

It feeds on the oak, the birch, &c.

The chrysalis occurs beneath the ground.

HYBERNIA PROGEMMARIA.

DOTTED BORDER.

Plate XXVII. *Figure* 12.

This insect measures from a little over an inch and a quarter to above an inch and a half in width.

Male: fore wings dull yellowish-brown with more or less of a tinge of reddish and dotted with brown, the half line brown. First line darker brown, rather broad and straight; second line also darker brown, narrow and slightly curved, the space between it and the outer margin darker than the rest of the wing; central spot brown but very indistinct. There is a row of black dots on the outer margin. Hind wings whitish, or pale yellowish freckled brown, with a small brown central spot and narrow brown waved line; the outer margin rather darker than the remainder, and dotted with black specks.

The female is without wings.

Localities for this common species are York, Nunburnholme, Bromsgrove, Swinhope, Brighton.

The situations where it is found are hedge sides.

The perfect insect appears in February and March.

The caterpillar is dull yellowish mottled with brown, with a brown line on each side below the back, and another on the sides.

The date of the appearance of the caterpillar is in June.

It feeds on the birch, the oak, &c.

The chrysalis is found beneath the ground.

HYBERNIA DEFOLIARIA.

MOTTLED UMBER.

Plate XXVII. *Figure* 13.

This insect measures from a little under to a little over an inch and three quarters across.

Male: fore wings pale dull yellowish, mottled with yellowish-brown, and dusted with brown. The first line much bent in an angle; second line bent in three angles, and followed by a dark shade; central spot dark brown, the outer margin spotted with brown. Hind wings dull yellowish-grey dusted with darker, and with a small brown central spot.

The female is without wings.

Localities for this widely distributed and rather common species are York, Brighton, Darenth Wood, Marlow, Bowdon, Exeter.

The perfect insect appears in October and November.

The caterpillar is reddish-brown on the back, with a broad yellow line on the sides, and a red spot on each segment.

The date of the appearance of the caterpillar is in May and June.

It feeds on the blackthorn, the whitethorn, &c.

The chrysalis is placed under the ground.

ANISOPTERYX ÆSCULARIA.

MARSH MOTH.

Plate XXVIII. *Figure* 1.

This insect measures from an inch and a quarter to an inch and a half in width.

Male: fore wings grey-brown. The first line is dark brown and waved, bordered on its inner side with a pale shade; second line much jagged, bordered on its outer edge with a whitish band; central spot dark brown, and high up on the wing. Hind wings grey, with an indistinct band, and a blackish-brown or dusky central spot.

The female is without wings.

Localities for this species, which is rather common, are York, Nunburnholme, Brighton, Faversham, Dunham Park, Edinburgh, Torwood.

The situations where it is found are hedge sides.

The perfect insect appears in March and April.

The caterpillar is pale green mottled with a darker shade, a white line below the back on each side, and another pale one on the sides.

The date of the appearance of the caterpillar is in May.

It feeds on the blackthorn, the whitethorn, &c.

The chrysalis occurs under the ground.

LARENTIDÆ.

CHEIMATOBIA BRUMARIA.

WINTER MOTH.

Plate XXVIII. *Figure* 2.

This insect measures from a little over an inch to one and a quarter in expanse.

Male: fore wings greyish-brown, crossed with several rather indistinct waved lines of a deeper tint, and a central shade also indistinct but rather darker than the ground colour of the wing. Hind wings paler greyish-brown, with very faint curved lines across.

The female is without wings or nearly so.

Localities for this abundant species are York, Nunburnholme, Falmouth, Thornhill, Brighton, Faversham, Perth, Sidmouth.

The situations where it is found are hedge sides.

The perfect insect appears in October, November, and December.

The caterpillar is pale green or yellowish, with sometimes a blackish tinge, a yellowish-white line below the two back, and another on the sides; the head green.

The date of the appearance of the caterpillar is in May.

The chrysalis is placed in a slight cocoon beneath the ground.

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CHEIMATOBIA BOREARIA.

Plate XXVIII. *Figure* 3.

This insect measures from a little under to a little over an inch and a quarter.

Male: fore wings pale grey with a faint tinge of dull yellowish, crossed by several indistinct waved lines and a central band of a darker shade, the latter followed by a pale band. Hind wings paler grey with, in some, a faint thin waved line across, and rather darker outer margin.

The female is all but apterous.

Localities for this species are York, Newnham, Manchester, Marlow, Huddersfield, Brighton, West Wickham, Delamere Forest, Darlington, Bidston near Birkenhead.

The situations where it is found are birch woods.

The perfect insect appears in October.

The caterpillar is pale green, with an indistinct yellowish line on either side below the back, and another on the sides; the head brown.

The date of the appearance of the caterpillar is in June.

It feeds on the birch.

The chrysalis is enclosed in a slight cocoon placed underneath the ground.

OPORABIA DILUTARIA.

NOVEMBER MOTH.

Plate XXVIII. *Figure* 4.

This insect measures from a little over an inch and a quarter to a little over an inch and a half in width.

Male: fore wings pale grey with several darker waved lines and bands across, and in some cases two dark and two pale bands alternately; central spot blackish but indistinct. Hind wings whitish, with, in some specimens, one or two lines following the course of the outer margin, and the latter with a line of small black dots.

Localities for this rather abundant species are York, Brighton, Darenth Wood, Faversham, Bromsgrove, Falmouth, Barnstaple, Exeter, Plymouth.

The perfect insect appears in the latter end of September and October.

The caterpillar is green, bluish white on the under part.

The date of the appearance of the caterpillar is in May.

It feeds on the oak, the elm, &c.

The chrysalis is subterranean.

This is a variable species.

OPORABIA FILIGRAMMARIA.

Plate XXVIII. *Figure* 5.

This insect measures from a little over an inch to an inch and a quarter in expanse.

Male: fore wings pale grey crossed by several darker waved lines, two of them forming the edge of a central band; central spot black. Hind wings whitish, the outer margin pale grey.

Localities for this species are the Isle of Man, Birkenhead, Bolton, Preston, Knowsley, Edinburgh, Manchester, Leeds, Arran, Plymouth, &c.

The situations where it is found are heaths.

The perfect insect appears at the end of August and in September.

The caterpillar feeds on the birch (?) and the heath, (*Calluna vulgaris*).

LARENTIA DIDYMARIA.

TWIN-SPOT CARPET.

Plate XXVIII. *Figure* 6.

This insect measures an inch or a little over in expanse.

Male: fore wings dark greyish-brown with a slight tinge of reddish, crossed with several darker lines, a dark greyish-brown band in the middle, another at the inner corner. Third line whitish and jagged, with two brownish black blots. Hind wings greyish-brown, darker broadly on the outer margin.

Localities for this very common species are York, Brighton, Humberstone, Faversham, Barnstaple, Exeter.

The perfect insect appears in June and July.

The caterpillar is pale green, with a narrow white line on the sides.

The date of the appearance of the caterpillar is in April.

It feeds on the chervil (*Chærophyllum aureum*).

LARENTARIA MULTISTRIGARIA.

MOTTLED GREY.

Plate XXVIII. *Figure* 7.

This insect measures from an inch to an inch and a quarter in expanse.

Male: fore wings yellowish-grey, powdered with darker grey. First line rather curved and composed of a row of double dots; second line also slightly curved and very indistinctly indicated by black dots; central shade darker than the remainder; central spot dark brown, but indistinct.

Localities for this species are York, Huddersfield, Scarborough, Glasgow, Dunoon, Torwood, Stirling, Brighton, Edinburgh, Kingsbury, Dunham Park, Exeter, Newnham, Birkenhead, Lewes, Manchester, Black Park, Darlington, Bristol, Plymouth.

The perfect insect appears in March and April.

The caterpillar is dark green, with blackish-brown markings on the sides.

The date of the appearance of the caterpillar is in May and June.

It feeds on the bedstraw (*Galium verum*).

LARENTIA CÆSIATA.

FEBRUARY CARPET.

Plate XXVIII. *Figure* 8.

This insect measures an inch and a quarter or a little over in expanse.

Male: fore wings grey, crossed by several lines of a darker shade more or less waved; central shade darker grey, edged on the outer side with a whitish line; central spot black.

Localities for this abundant species are Peckham, Isle of Man, Darlington, Glasgow, Keswick, Sutherland, Edinburgh, Rannoch, Ben Nevis, Golspie, Manchester, Newnham, Huddersfield.

The situations where it is found are heaths.

The perfect insect appears in June and July.

The caterpillar is yellowish-green, with a triangular-shaped reddish mark on each segment, itself edged with black on the hinder ones, a white line on the sides.

The date of the appearance of the caterpillar is in July.

It feeds on the heath (*Calluna vulgaris*).

LARENTIA RUFICINCTARIA.

YELLOW-RINGED CARPET.

Plate XXVIII. *Figure* 9.

This insect measures from an inch and a quarter to nearly one and a half in width.

Male: fore wings grey, crossed with numerous darker waved lines, and sometimes one or two slight yellowish bands at the inner corner; third line yellowish; central shade rather darker than the remainder, yellowish on its inner edge; central spot blackish. Hind wings greyish.

Localities for this species are Newnham, Inchnadumph, Rannoch, Keswick.

The perfect insect appears in July.

The caterpillar is dull green, with a row of triangular-shaped reddish spots, edged with white along the back.

The date of the appearance of the caterpillar is in May.

It feeds on the white meadow saxifrage (*Saxifraga granulata*), and the mossy saxifrage (*Saxifraga hypnoides*).

LARENTIA SALICARIA.

NORTHERN TWIN-SPOT.

Plate XXVIII. *Figure* 10.

This insect measures a little over an inch to nearly one and a quarter in expanse.

Male: fore wings rather dark brownish-grey, crossed by several dark grey lines. The first line is darker and waved; second line dark grey, edged indistinctly with whitish, central shade dark grey, with a dark blot near the upper margin; third line whitish, central spot black. Hind wings brownish-grey within the outer margin.

Localities for this species are York, Huddersfield, Ambleside, Manchester, Arran, Newcastle-on-Tyne, Isle of Man, Waterford, Darlington, Ben Nevis, Ben Donish, Storeton near Birkenhead.

The perfect insect appears in June.

LARENTIA OLIVARIA.

BEECH-GREEN CARPET.

Plate XXVIII. *Figure* 11.

This insect measures from an inch to an inch and a quarter across.

Male: fore wings dull olive-green, with a blot of a darker shade edged with whitish at the inner corner; central band darker olive-green edged with whitish; central spot blackish, in some specimens surrounded by a pale mark.

Localities for this species are Edinburgh, Halton, Rannoch, Dunoon, Newcastle-on-Tyne, Keswick, Glasgow, Preston, Darlington, Ventnor, Chatsworth, Exeter, Barnstaple, Bristol, Lyndhurst, Manchester, Malvern.

The perfect insect appears in July.

The caterpillar is dull brown.

The date of the appearance of the caterpillar is in October and April.

It feeds on the bedstraw *(Galium verum)*.

LARENTIA PECTINITARIA.

AUTUMN GREEN CARPET.

Plate XXVIII. *Figure* 12.

This insect measures from a little over an inch to one and a quarter in expanse.

Male: fore wings pale green, half line black, narrowing from the upper margin. The first line is black, broadest at the upper margin, and edged with whitish; second line also black, broadest at the upper margin, and edged with whitish; there is a blackish mark near the outer corner; central shade greyish-green; central spot grey but rather indistinct. Hind wings dull pale greenish-yellow, with two pale brown waved and curved lines

across, and the space within the outer margin darker than the remainder.

Localities for this rather common species are York, Charmouth, Faversham, Brighton, Glasgow.

The situations where it is found are woods and lanes.

The perfect insect appears in June and July.

EMMELESIA AFFINITARIA.

RIVULET.

Plate XXIX. *Figure* 1.

This insect measures an inch or a little over in expanse.

Male: fore wings dull greenish, crossed by several darker waved lines. Third line whitish and waved but most distinct near the upper margin; central band also darker, followed by a broad white waved band with a thin grey line running through it.

Localities for this species are York, Darlington, Scarborough, Falmouth, Bristol, Walley, Lynton, Stowmarket, Brighton, Lewes, Manchester, Exeter, Durham, Poynings, Tenterden, Kingsbury, Birkenhead, Newnham, Preston, Faversham, Newcastle-on-Tyne, Barnstaple, West Looe.

The perfect insect appears in June and July.

The caterpillar is dull white with a row of black dots on the sides.

The date of the appearance of the caterpillar is in August.

It feeds on the seeds of the red campion *(Lychnis diurna)*.

The chrysalis is enclosed in a cocoon of earth.

EMMELESIA ALCHEMILLARIA.

SMALL RIVULET.

Plate XXIX. *Figure* 2.

This insect measures about three-quarters of an inch or a little over in width.

Male : fore wings dull pale reddish-brown with a very faint tinge of green, crossed by several darker waved lines and with two small white marks on the lower margin. Third line waved and whitish ; central band followed by a white waved line through which runs a slender line of grey.

Localities for this species are York, Huddersfield, Scarborough, Darlington, Faversham, Glasgow, Ardrossan, Lynton, Barnstaple, Cambridge, Lower Guiting, Lewes, West Looe, Birkenhead, Edinburgh, Stowmarket, Preston, Brighton, Exeter, Manchester, Newnham, Charmouth, Bristol, Newcastle-on-Tyne.

The situations where it is found are lanes and woods.

The perfect insect appears in June and July.

The caterpillar is dull yellowish grey, brown on the sides and between the segments.

It feeds on the nettle (*Urtica urens*).

The chrysalis is enclosed in a cocoon of earth.

EMMELESIA ALBULARIA.

GRASS RIVULET.

Plate XXIX. *Figure* 3.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings silvery whitish grey, crossed by several pale yellowish grey waved lines, with a central band beyond the middle, through which runs a pale grey line. Hind wings whitish grey, darker within the outer margin.

Localities for this species are York, Scarborough, Glasgow, Isle of Man, Barnstaple, Kingsbury, Pembury, Carron, Ullswater, Birkenhead, Manchester, Oxford, Stirling, Edinburgh, Newcastle-on-Tyne.

The situations where it is found are hedges in fields.

The perfect insect appears in June, July, and the beginning of August.

The caterpillar is whitish-green, with a broad dark green line along the back and another on the sides, head brown.

The date of the appearance of the caterpillar is in August and September.

It feeds on the seeds of the common yellow rattle (*Rhinanthus crista-galli*).

The chrysalis is enclosed in a cocoon of earth.

EMMELESIA DECOLORATA.

SANDY CARPET.

Plate XXIX. *Figure* 4.

This insect measures from an inch to an inch and a quarter in expanse.

Male: fore wings white, crossed by several waved dull yellowish lines; central band with a broad white one outside it; third line dull yellow, jagged, and with shades beyond it to the outer margin. Hind wings pale yellowish-white, with a very faint cross darker streak and the space within the outer margin also darker.

Localities for this species are York, Scarborough, Glasgow, Renfrew, Darenth Wood, Barnstaple, Exeter, Stowmarket, Faversham, Worcester, Falmouth, Brighton, Kingsbury, Wavendon, Bowdon, West Looe, Darlington, Manchester, Sudbury, Edinburgh, Newcastle-on-Tyne, Marlow, Bristol, Lewes, Bromsgrove.

The perfect insect appears in June and July.

It feeds on the flowers of the red campion (*Lychnis diurna*).

EMMELESIA TÆNIATA.

Plate XXIX. *Figure* 5.

This insect measures from three quarters of an inch to nearly an inch in expanse.

Male: fore wings dull yellowish-grey, with a dark grey blot or patch at the inner corner; second line white, bent, and rather indented, most conspicuous near the upper margin; central shade dark grey.

Localities for this species are Newcastle-on-Tyne, Keswick and the "Lake District," Killarney Tintern, Monmouth.

The perfect insect appears in July.

EMMELESIA UNIFASCIARIA.

SINGLE-BARRED RIVULET.

Plate XXIX. *Figure* 6.

This insect measures three quarters of an inch or a little above that in width.

Male: fore wings greyish-brown; central band darker, edged on each side with whitish, intersected by a slender grey line. There is a short black dash from the tip of the wing.

Localities for this very common species are Ardrossan, Newcastle-on-Tyne, Conway, Lewisham, Borrowdale, Lewes, Bristol, Cambridge, Ipswich, Arran, Tranmere near Birkenhead.

The perfect insect appears in June, July, and August.

EMMELESIA ERICETARIA.

HEATH RIVULET.

Plate XXIX. *Figure* 7.

This insect measures from a little under to three-quarters of an inch in width.

Male: fore wings pale grey, with a blot of darker grey at the inner corner; the first line or band is also darker

grey; second line darker grey: third line whitish, intersecting the previous one; central band darker grey and rather narrow.

Localities for this species are Edinburgh, Glasgow, Ambleside, Keswick, Carlisle, Rannoch, Inver, Sutherland, Stowmarket.

The perfect insect appears in June and July.

EMMELESIA BLANDIARIA.

Plate XXIX. *Figure* 8.

This insect measures three quarters of an inch or somewhat over in expanse.

Male: fore wings whitish, with a grey patch or blot at the inner corner; third line whitish; central band grey, darker towards the upper margin, and a pale grey outer margin crossed by the third line; central spot black and rather large.

Localities for this species are Rannoch, Loch Long, Keswick, Kilmun, Ambleside, Ben Nevis, Loch Goil, Loch Fyne.

The perfect insect appears in May and June.

The caterpillar is green, with a series of angular shaped marks along the back, and the side line yellowish-green.

The date of the appearance of the caterpillar is in September.

It feeds on the eye-bright (*Euphrasia officinalis*).

EUPITHECIA VENOSARIA.

NETTED PUG.

Plate XXIX. *Figure* 9.

This insect measures from rather above three quarters of an inch to one inch in expanse.

Male: fore wings dull yellowish grey, crossed by two waved whitish bands, four black lines, and several shorter ones, forming a kind of network, whence the trivial name.

Localities for this species are York, Huddersfield, Brighton, Cambridge, Lewes, Worthing, Darenth Wood, Bristol, Halton, Darlington, Newnham, Stowmarket, Hale near Liverpool, and Sudbury in Derbyshire.

The perfect insect appears in May and June.

The caterpillar, blackish in its first stage, is afterwards dull bluish-grey on the back, studded with minute white spots, the sides dull greenish-white.

The date of the appearance of the caterpillar is in July.

It feeds on the seeds of the bladder campion (*Silene inflata*), and the red campion (*Lychnis diurna*).

The chrysalis is bright red. It is enclosed in a slight cocoon.

EUPITHECIA CONSIGNARIA.

PINION-SPOTTED PUG.

Plate XXIX. *Figure* 10.

This insect measures rather above three quarters of an inch in expanse.

Male: fore wings grey, with three brownish-grey blots on the upper margin, and crossed by two waved whitish bands; central spot black.

Localities for this species are Lewes, Pembury, Cambridge, Lower Guiting.

The perfect insect appears in May.

The caterpillar is pale green with a row of red angular shaped spots along the back, the side line yellow, and the divisions between the segments yellow.

The date of the appearance of the caterpillar is in June.

It feeds on the apple, &c.

The chrysalis occurs under the bark of trees.

EUPITHECIA LINARIARIA.

BEAUTIFUL PUG.

Plate XXIX. *Figure* 11.

This insect measures from rather under to rather over three quarters of an inch in width.

Male: fore wings dull yellowish, with a tawny band near the inner corner, and another toward the outer margin; central band dark grey, edged on each side with whitish; third line whitish, intersected by two dark grey blots.

Localities for this species are Ipswich, Exeter, Lewisham, Newnham, Stowmarket, Edinburgh, Cambridge, Bristol, Birkenhead, Brighton.

The perfect insect appears in May. There are sometimes two broods in the year.

The caterpillar is at first bright yellow with blackish spots on the back, and afterwards becomes yellowish-green,

with a series of large dull olive or reddish-brown spots or marks on the back, on each side of which is a dusky olive line; the head nearly black. The spots on the back are often indistinct and sometimes wholly wanting.

The date of the appearance of the caterpillar is in August and September.

It feeds on the seeds of the yellow toad-flax (*Linaria vulgaris*).

The chrysalis is reddish-yellow, the tail deep red, the thorax and wing-cases olive. It is enclosed in a cocoon of earth.

EUPITHECIA PULCHELLARIA.

PRETTY PUG.

Plate XXIX. *Figure* 12.

This insect measures rather over three quarters of an inch in expanse.

Male: fore wings pale dull yellowish, with a dull greyish tawny band near the inner corner, and another towards the outer margin; third line dull yellowish-white but very indistinct; central band grey, edged on each side with whitish and crossed by a waved whitish line; centre spot black.

Localities for this species are Harrogate, Scarborough, Lewisham, Huddersfield, Edinburgh, Exeter, Worcester, Manchester, Lyndhurst, Dunoon, Tenterden, Birkenhead, Brighton.

The perfect insect appears in May.

EUPITHECIA CENTAUREATA.

LIME-SPECKED PUG.

Plate XXIX. *Figure* 13.

This insect measures from a little under an inch to an inch in expanse.

Male: fore wings white, clouded with pale grey towards the outer margin; first line grey and waved but rather indistinct; second line also indistinct, waved and grey; central spot black and curved, and between it and the upper margin is a grey blot.

Localities for this species are Scarborough, Glasgow, Bromsgrove, Ardrossan, Stowmarket, Pembury, Exeter, Edinburgh, Kingsbury, Newcastle-on-Tyne, Birkenhead, Lewes, Brighton, New Brighton, Bristol, Halton, West Looe, Manchester, Worcester, Cambridge, Newnham, Ipswich.

The situations where it is found are hedgerows and woods.

The perfect insect appears in May, June, July, and August.

The caterpillar is very variable, either bright yellowish or bluish-green, with many spots and lines of a darker shade on the back and below it, often making a series of spots; or plain yellowish or bluish-green or greenish or pink-white, with a chain of deep red triple spots on the back run together towards the head, the lower part whitish, with a short red line or spot in the centre of several of the segments.

The date of the appearance of the caterpillar is in September.

It feeds, as variable in its food as in its markings, on the ragwort (*Senecio jacobæa*), the yarrow (*Achillæa millefolium*), the hoary ragwort (*Senecio crucifolius*), the golden rod (*Solidago virgaurea*), the hemp agrimony (*Eupatorium cannabinum*), the common burnet saxifrage (*Pimpinella saxifraga*), the greater burnet saxifrage (*Pimpinella magna*), the groundsel (*Senecio vulgaris*), the black knapweed (*Centaurea nigra*), the meadow pepper-saxifrage (*Silans patensis*), the clustered bell-flower (*Campanula glomerata*), the small scabious (*Scabiosa columbaria*).

The chrysalis is pale red, and is enclosed in a cocoon of earth.

EUPITHECIA SUCCENTAUREARIA.

BORDERED LIME-SPECKED PUG.

Plate XXIX. *Figure* 14.

This insect measures from a little over three quarters of an inch to an inch in expanse.

Male: fore wings whitish, the upper margin and outer margin grey, sometimes tawny, with the upper margin and outer margin brownish-grey; or, again, greyish-brown, with several transverse waved lines; the second line crossed by a tawny blot; central spot round and black.

Localities for this species are York, Ardrossan, Isle of Wight, Edinburgh, Darlington, Scarborough, Lower Guiting, Bognor, Exeter, Cambridge, Ipswich, Bristol, Wavendon, Sanderstead, Kingsbury, Newcastle-on-Tyne, Manchester, Marlow, Lewisham, Birkenhead, Barn-

staple, Lewes, Pembury, Worcester, Llenferras, Stowmarket, and the Isle of Man.

The perfect insect appears in June, July, and August.

The caterpillar is reddish-brown, with a series of dusky olive spots along the back, confluent at each end, and strung on a paler line of the same colour, on either side a black interrupted line, and a white one below; the back thickly studded with minute white raised spots, the lower part whitish, with a purple line along it.

The date of the appearance of the caterpillar is in September and October.

It feeds on the flower and seed of the yarrow (*Achillæa millefolium*), the sea worm-wood (*Artemisia maritima*).

The chrysalis is orange red, the thorax and wing-cases paler in colour.

EUPITHECIA SUBUMBRARIA.

SMALL BRINDLED PUG.

Plate XXIX. *Figure* 15.

This insect measures rather over three quarters of an inch in expanse.

Male: fore wings whitish-grey, darker along the upper margin and outer margin; third line whitish; central spot very indistinct. Hind wings whitish, grey on the outer margin.

Localities for this species are York, Halton, Cambridge, Brighton, Bristol.

The perfect insect appears in June.

The caterpillar is of a dull yellowish-green colour, with a broad dark green line along the back, and below it on

each side a very narrow and indistinct one; a dusky green line on the sides, and a yellowish line on each side of the head and the last segment; otherwise, it is of an obscure greenish-brown colour, the line along the back dusky olive, and the one below it on the sides of a similar tint and narrow.

The date of the appearance of the caterpillar is in August and September.

It feeds on the rough hawkbit (*Apargia hispida*), and the hawksbeard (*Crepis taraxacifolia*), the black knapweed (*Centaurea nigra*), the field scabious (*Knautia arvensis*), the small-flowered autumnal gentian (*Gentiana amarella*), the field gentian (*Gentiana campestris*), the wild marjoram (*Origanum vulgare*), the self-heal (*Prunella vulgaris*), the great hedge bedstraw (*Galium mollugo*).

The chrysalis is enclosed in a cocoon of earth. It is red towards and at the tail; the thorax and wing-cases golden yellow with a tinge of red.

EUPITHECIA PERNOTARIA.

Plate XXIX. *Figure* 16.

This insect measures nearly an inch in expanse.

Male: fore wings yellowish-grey, crossed by numerous waved lines of a paler colour; the third line whitish; central spot black.

The caterpillar feeds on the golden rod (*Solidago virgaurea*).

The perfect insect appears in July.

EUPITHECIA PLUMBEOLARIA.

LEAD-COLOURED PUG.

Plate XXIX. *Figure* 17.

This insect measures rather under three quarters of an inch in width.

Male: fore wings pale grey, with numerous darker lines across; third line nearly obliterated; the fringes grey; central spot greyish, but very indistinct.

Localities for this species are Scarborough, Tenterden, Faversham, West Looe, Lewes, Cambridge, Kingsbury, Barnstaple, Worcester, Killarney, Stowmarket, Darenth Wood, Simonswood Moss near Liverpool, Rannoch, Isle of Man.

The situations where it is found are woods.

The perfect insect appears in May and June.

EUPITHECIA HAWORTHIARIA.

Plate XXIX. *Figure* 18.

This insect measures rather under three quarters of an inch in expanse.

Male: fore wings pale grey, crossed by numerous waved darker lines and a whitish band; third line indistinct; the body pale grey, tinged with orange on the first three segments.

Localities for this species are near Bristol, and also near Brighton.

The perfect insect appears in July.

It feeds on the clematis (*Clematis vitalba*).

EUPITHECIA PYGMÆARIA.

Plate XXIX. *Figure* 19.

This insect measures under three quarters of an inch in width.

Male: fore wings brownish-grey, crossed by some indistinct paler lines; third line indistinct, with a white spot near the lower corner: the fringes grey spotted with white.

Localities for this species are York, Glasgow, Ardrossan, Edinburgh, Darlington, Cambridge, Claughton near Birkenhead.

The perfect insect appears in June.

EUPITHECIA HELVETICARIA.

Plate XXIX. *Figure* 20.

This insect measures from a little under to a little over three quarters of an inch in width.

Male: fore wings grey-brown, with several waved darker lines across; third line indistinct, but showing marks near the lower corner; central spot black. Hind wings with the fringes dull yellowish-grey, spotted with dark grey. The body with slight prominences on each segment.

Localities for this species are near Edinburgh.

The perfect insect appears in April and May.

The caterpillar is bright green.

The date of the appearance of the caterpillar is in September and October.

It feeds on the juniper.

EUPITHECIA SATYRARIA.

SPECKLED PUG.

Plate XXIX. *Figure* 21.

This insect measures three quarters of an inch to a little over in width.

Male: fore wings pale grey, crossed by numerous darker waved lines; third line a row of whitish dots; central spot blackish but often indistinct. Hind wings pale grey, darker towards the outer margin.

Localities for this species are York, Castle Eden Dene, Killarney, Brighton, Scarborough, Edinburgh, Halton, Waterford, Glasgow, Simonswood Moss near Birkenhead.

The situations where it is found are woods and woody places.

The perfect insect appears in April and May.

The caterpillar is whitish-grey, with a row along the back of dull red angular-shaped markings, edged in front with brownish; side line dull red.

The date of the appearance of the caterpillar is in June.

It feeds on the devil's-bit scabious (*Scabiosa succisa*), the bedstraw (*Galium verum*), the St. John's wort (*Hypericum calycinum*), &c.

EUPITHECIA EGENARIA.

Plate XXIX. *Figure* 22.

This insect measures an inch in expanse.

Male: fore wings grey, crossed by numerous paler lines; third line rather indistinct, followed by a dark

grey border along the outer margin; central spot lengthened and black; the fringes spotted. Hind wings with a pale band edged with blackish and divided by a blackish line.

Localities for this species are in the Isle of Wight.

The perfect insect appears in July?

EUPITHECIA CASTIGARIA.

BRINDLED PUG.

Plate XXIX. *Figure* 23.

This insect measures from three quarters of an inch to nearly an inch across.

Male: grey, with numerous pale grey waved transverse lines; the third line whitish; central spot black. Hind wings grey, pale greyish-white at the inner corner, darker towards the outer and lower margin; central spot grey.

Localities for this species are York, Scarborough, Glasgow, Ipswich, Halton, Kingsbury, Lewes, Stowmarket, Manchester, Edinburgh, Darlington, Cambridge, Birkenhead, Lower Guiting, Killarney.

The situations where it is found are woods.

The perfect insect appears in June.

The caterpillar is of a pale dusky olive or reddish brown colour, studded over with minute white raised spots, and with a row of angular-shaped spots along the back, run together on the front and hind segments.

The date of the appearance of the caterpillar is in August and September.

It feeds on the privet and a great variety of trees, shrubs, plants, and flowers.

The chrysalis is enclosed in an earthen cocoon. It is of a reddish or greenish-yellow colour, the thorax and wing-covers yellow, the latter tinted with green.

EUPITHECIA VIRGAUREARIA.

LONG-WINGED PUG.

Plate XXIX. *Figure* 24.

This insect measures from three quarters of an inch to nearly an inch in expanse.

Male: fore wings grey, with numerous darker lines across; the third line is whitish, with two distinct white spots, one below the middle, the other at the lower corner. Hind wings similarly marked with white. The middle of the thorax and the end of the body also white.

Localities for this species are Epping and Ipswich.

The situations where it is found are woods and gardens.

The perfect insect appears in May and the beginning of June.

The caterpillar is of a yellowish colour, with a series of black angular-shaped spots along the back, confluent towards the head, and indistinct on the hind segment, below it, on the sides, is a row of slanting whitish or yellowish stripes.

The date of the appearance of the caterpillar is in August and September.

It feeds on the golden rod (*Solidago virgaurea*), the ragwort (*Senecio jacobæa*), and the fleawort (*Cineraria palustris*).

The chrysalis is enclosed in a slight cocoon of earth. It is of a red colour, with two indistinct and interrupted dusky lines along the back, and two others, distinct, below it on each side; the wing-cases yellowish-olive, streaked with dusky markings.

EUPITHECIA VIMINARIA.

Plate XXIX. *Figure* 25.

This insect measures from rather under to about three quarters of an inch in width, but rather inclining to the former measurement.

Male: fore wings pale greyish-brown, with a very indistinct pale waved line near the outer margin; central spot very minute and placed in the middle of the wing. Hind wings also pale greyish-brown, with very faint undulated streaks.

Localities for this species are Darlington, Brighton, Ardrossan, Portland, Llanferras, Wicken Fen in Cambridgeshire, Warrington in Lancashire, and Waterford.

The situations where it is found are willow and osier beds.

The perfect insect appears in June, and also has been captured in August.

I have to thank Messrs. Frederick Bond of Kingsbury, Middlesex, and N. Greening of Warrington, Lancashire, for information respecting the present species.

EUPITHECIA PUSILLARIA.

Plate XXIX. *Figure* 26.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings grey with a slight tinge of dull yellowish; the first line is dark grey and curved; second line dark grey and curved; third line whitish-grey; central spot black, through which runs a double central line of grey; the outer margin dark grey.

Localities for this species are West Wickham Wood, Bristol, Worcester, Sudbury, Ambleside, Carron.

The situations where it is found are woods and gardens.

The perfect insect appears in May.

The caterpillar is green, with a whitish line along the back, and the side line white.

The date of the appearance of the caterpillar is in June.

It feeds on the juniper and the fir.?

EUPITHECIA IRRIGUARIA.

WELSH PUG.

Plate XXIX. *Figure* 27.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings whitish, with a dark grey band at the inner corner, third line whitish; central spot black; a dark grey blot above it on the upper margin, the outer margin dark grey.

Localities for this species are Brighton, Lyndhurst, and Newcastle-on-Tyne, South Wales, Killarney.

The situations where it is found are on mountains.

The perfect insect appears in April and May.

EUPITHECIA PIMPINELLARIA.

Plate XXIX. *Figure* 28.

This insect measures a little over three quarters of an inch in expanse.

Male: fore wings greyish, with a tinge of dull yellowish along the outer and lower margins, and with numerous waved transverse lines; the second line bent below the upper margin; third line whitish and much indented; central spot black.

Localities for this species are Deal, Brighton, and the Isle of Wight,? Llanferras, Conway, Waterford.

The situations where it is found are hedge-sides and banks.

The perfect insect appears at the end of June, and in July.

The caterpillar is green, with three purple lines along the back, the middle one broad and distinct, the others very indistinct; between the segments yellowish, as is the line on the sides, the back is spotted with a few small white raised spots, and some black ones, the lower part green. Another variety is purple, with two lines of deeper tint along each side of the back.

The date of the appearance of the caterpillar is in September and the beginning of October.

It feeds on the blossoms of the common burnet saxifrage (*Pimpinella saxifraga*).

The chrysalis is enclosed in an earthen cocoon, it is yellowish-green, or otherwise red.

EUPITHECIA INNOTARIA.

UNSPOTTED PUG.

Plate XXX. *Figure* 1.

This insect measures rather above three quarters of an inch in expanse.

Male: fore wings pale brownish-grey, with very indistinct darker lines across, forming a band sharply bent; central spot black.

Localities for this species are Sheffield, Huddersfield, Halifax, Newnham, Halton, Edinburgh, Lewes, Ipswich, Kingsbury, Dunoon, Cambridge, Darlington, Birkenhead, Darenth Wood, Derby.

The perfect insect appears in June and July.

The caterpillar is dark green, the central line on the back sometimes wanting, and its place supplied by a row of dusky angular-shaped markings, on each side of it is a row of slanting yellowish stripes tinged with pink, there is a yellowish waved line on the sides, between the segments it is yellow, and there is a dark purple spot on the tail part, underneath it is whitish with a dark green line along.

The date of the appearance of the caterpillar is in August and to the middle of September.

It feeds on the ash, the mugwort? (*Artemisia vulgaris*), and the wormwood? (*Artemisia Absynthium*).

The chrysalis is found at the root of trees or under moss, enclosed in a slight cocoon of earth; it is nearly black with a tint of red, the thorax and wing-cases dark olive.

EUPITHECIA INDIGARIA.

Plate XXX. *Figure* 2.

This insect measures from rather under to about three quarters of an inch in width.

Male: fore wings pale grey with a faint tinge of red, and a few very indistinct waved lines across; central spot black. Hind wings very pale grey; central spot grey.

Localities for this species are York, Scarborough, Brighton, Edinburgh, Manchester, Prenton near Birkenhead, Bowdon.

The situations where it is found are fir plantations.

The perfect insect appears in May and August.

It feeds on the fir (*Pinus sylvestris*).

EUPITHECIA CONSTRICTARIA.

Plate XXX. *Figure* 3.

This insect measures three quarters of an inch across.

Male: fore wings grey, with numerous waved transverse dark grey waved lines, broadest towards the upper margin; third line pale grey; central spot black. Hind wings pale grey; central line dark grey; third line pale grey and much indented; central spot grey.

Localities for this species are Darlington, Brighton, Ardrossan, Portland, Llanferras, and Waterford.

The perfect insect appears in August.

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EUPITHECIA NANARIA.

NARROW-WINGED PUG.

Plate XXX. *Figure* 4.

This insect measures rather above three quarters of an inch in width.

Male: fore wings dark grey, with numerous waved whitish lines across; the third line whitish, much indented and crossed by a white streak which runs to the tip of the wing; the fringe whitish, spotted with dark grey; central spot black.

Localities for this species are York, Scarborough, Edinburgh, Glasgow, Stowmarket, Manchester, Birkenhead, Darlington, Brighton, Isle of Man, Lynton, Saddleworth, Preston.

The situations where it is found are woods.

The perfect insect appears in May and August.

The caterpillar is white or greenish-white with a row of red spots on the back, bordered on each side by an interrupted line of the same colour, the sides spotted with red; underneath there is a central red line. A variety is of a bright green ground colour, with a series of white spots along the back, through which runs a dark green line of purple at the tail end. Another is pink and white.

The date of the appearance of the caterpillar is in August, September, and October.

It feeds on the blossoms of the heath (*Calluna vulgaris*).

The chrysalis is enclosed in a cocoon of earth. It is deeply tinged with red, the thorax and wing cases yellow. The chrysalis of the green variety has a green tint all over it.

EUPITHECIA SUBNOTARIA.

PLAIN PUG.

Plate XXX. *Figure* 5.

This insect measures from above three quarters of an inch to nearly an inch in expanse.

Male: fore wings dull greyish yellow, crossed by numerous darker waved lines, and a narrow pale band beyond the middle; third line whitish, at the lower corner white; central spot dark grey, but inconspicuous.

Localities for this species are the banks of the Orwell and the Stour, Gravesend, Ipswich, Bexley, Kingsbury, Lewisham, Bristol and Exeter, Prenton near Birkenhead, Brighton, Faversham.

The situations where it is found are woods, gardens, and lanes.

The perfect insect appears in June and July.

The caterpillar is dull yellowish-green, pale green or reddish-grey, studded over with minute white and some black raised spots, with a row of angular-shaped dull olive spots along the back, run together towards the head and tail, and sometimes bordered by an indistinct olive line, the spots and lines in some individuals very faint; the divisions between the segments yellowish or reddish, the line on the sides yellowish.

The date of the appearance of the caterpillar is in August, September, and October.

It feeds on the orache (*Atriplex laciniata*), and the goose-foot (*Chenopodium album*).

The chrysalis is found enclosed in a cocoon of earth. It is yellowish on the thorax and the body, the wing-cases dark green.

EUPITHECIA VULGARIA.

COMMON PUG.

Plate XXX. *Figure* 6.

This insect measures rather above three quarters of an inch in width.

Male: fore wings pale reddish-brown, with numerous darker lines across; third line whitish, at the lower corner white; central spot black.

Localities for this species are York, Glasgow, Scarborough, Darlington, Faversham, Edinburgh, Lower Guiting, Birkenhead, Whittingham, Barnstaple, Lewes, Newnham, Stowmarket, Newcastle-on-Tyne, Tenterden, Exeter, Halton, Worthing, Kingsbury, Brighton.

The situations where it is found are hedges, &c.

The perfect insect appears in May and June.

The caterpillar is reddish-brown or dull olive studded over with minute white raised spots, with a row of dusky greenish angular-shaped spots along the back, confluent at the head and the tail, the line on the sides waved and yellowish, occasionally interrupted with black.

The date of the appearance of the caterpillar is in July.

It feeds on the whitethorn.

The chrysalis is enclosed in a cocoon of earth. It is reddish, the head, thorax, and wing-cases olive.

EUPITHECIA EXPALLIDARIA.

Plate XXX. *Figure* 7.

This insect measures three quarters of an inch or rather more in expanse.

Male: fore wings pale brownish-grey, rather darker at the inner corner. The first line is only visible on the

upper margin; second line the same; third line whitish, at the lower corner white; central line only apparent on the upper margin; central spot black.

Localities for this species are Brighton, and Conway in Wales, on the coast.

The perfect insect appears in June, July, and August.

The caterpillar is variously pale clear yellow studded over with minute yellow raised spots, with a pale brown line along the back, and a row of large deep rich brown spots joined at the points, confluent and faint on the first and last segments, scarcely visible on the latter, and bordered on each side by a nearly black line, below which is a narrow line of rich brown, and a row of slanting stripes of the same colour; the side line yellowish, underneath tinged with brown on either side, with a central line of the same colour; or otherwise grey or yellowish-green, the spots on the back brown and angular, absent from the hind segments, the line below the back deeper brown, interrupted at the segments; the side line yellowish, bordered on its lower side with brown; or, again, the ground colour different shades of green, and all the markings either faint or wholly wanting; or, a deep rich chocolate-brown, excepting the last segments on the back, which are clear light yellow, with a central pale brown line, two yellow spots on each segment on the back, and a brown line on each side between two yellow waved lines.

The date of the appearance of the caterpillar is in September and October.

It feeds on the flowers of the golden rod (*Solidago virgaurea*), also the Michaelmas daisy.

The chrysalis is enclosed in a cocoon of earth, and is yellow, tinged with red on the body; the thorax yellow, with a less tinge of red, the wing-cases more or less tinged with green.

EUPITHECIA ABSYNTHIARIA.

WORMWOOD PUG.

Plate XXX. *Figure* 8.

This insect measures from rather above three quarters of an inch to nearly an inch in expanse.

Male: fore wings brownish grey, with a slight tinge of reddish, and three black spots on the upper margin. Third line a series of white dots ending in a white spot at the lower corner.

Localities for this species are York, Scarborough, Glasgow, Newcastle-on-Tyne, Barnstaple, Edinburgh, Exeter, Manchester, Stowmarket, Birkenhead, Faversham, Lower Guiting, Halton, Darlington, Lewes, and the Isle of Man.

The situations where it is found are gardens.

The perfect insect appears in June and July.

The caterpillar is very variable—yellowish-green, deep rose-red, or dull reddish-brown, thickly studded with minute white raised spots, with a range of reddish angular-shaped spots along the back, generally faint or run together towards the head and tail; these spots are sometimes wanting in the green variety; on the sides are a number of narrow slanting yellow stripes bordering the spots on the back; the side line yellow and waved; the divisions between the segments yellow.

The date of the appearance of the caterpillar is in August, September, October, and November.

It feeds on the ragwort (*Senecio jacobæa,*) the hoary-leaved ragwort (*Senecio crucifolius,*) the hemp agrimony (*Eupatorium cannabinum,*) the mugwort (*Artemisia vulgaris,*) the yarrow (*Achillæa millefolium,*) the golden rod (*Solidago virgaurea,*) &c.

The chrysalis is enclosed in an earthen cocoon, and has the thorax yellowish-green, the wing-cases bright green, the body reddish-yellow, with a dark green line on the back.

EUPITHECIA MINUTARIA.

Plate XXX. *Figure* 9.

This insect measures three quarters of an inch or a little over in width.

Male: fore wings brownish-grey, with a very faint tinge of reddish.

Localities for this species are Glasgow, Newcastle-on-Tyne, West Wickham, and Prenton near Birkenhead.

The situations where it is found are heaths.

The perfect insect appears in June.

The caterpillar is dull pink or yellowish-red, with a row of dusky marks along the back, through which runs a pink line, faint on the front segments, and almost invisible on the hind ones; each segment on the back studded with four yellowish raised spots, the side line yellowish, with occasional interruptions of dusky blots; the back also studded with minute white raised spots and a few black ones; the head dull olive; the body underneath dusky or pinkish-white.

The date of the appearance of the caterpillar is in August and September.

It feeds on the flowers of the heath (*Calluna vulgaris*), the yarrow (*Achillæa millefolium*), and the wild parsley (*Anthriscus sylvestris*).

The chrysalis is enclosed in an earthen cocoon; the body yellow, generally suffused with red, and deep red at the tip; the thorax and wing-cases golden yellow.

EUPITHECIA ASSIMILARIA.

Plate XXX. *Figure* 10.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings light blackish-brown; third line whitish.

Localities for this species are Glasgow, Newcastle-on-Tyne, Brighton, Lower Guiting, Halton, Ipswich, Derby, Wallasey near Birkenhead, Liverpool, Edinburgh.

The situations where it is found are gardens.

The perfect insect appears in May and June.

The caterpillar is yellowish-green thickly sprinkled with small yellowish-green raised spots, the divisions between the segments yellow, a dark green line along the back, and one below it, on each side, of dark green, but very indistinct. Otherwise, pale green at first, afterwards dull yellowish green, a central line on the back and spots, the latter merged in the former on the front and hindmost segments, the lines on each side of the back dusky, the sides tinged with dull reddish brown and crossed by several slender lines of the same colour, the head greenish marked with black, the body underneath greenish. Another is bright green with a row of brown angular-shaped spots on the back. Another is pinkish, tinged above and below with green, with a dark green line along the back bordered by a black dot on each of the middle segments.

The date of the appearance of the caterpillar is in September, October, and November.

It feeds on the black currant, the wild hop (*Humulus lupulus*), and also the red currant.

The chrysalis is placed in an earthen cocoon and is yellowish-green in colour.

EUPITHECIA TENUIARIA.

Plate XXX. *Figure* 11.

This insect measures rather less than three quarters of an inch in width.

Male: fore wings pale grey, crossed with several dark waved lines, the outer margin darker grey, the upper margin with two reddish brown spots near the middle; central spot black.

Localities for this abundant species are York, Hale near Liverpool, Scarborough, Epping, Tintern, Monmouth.

The perfect insect appears in June and July.

The caterpillar is dull yellowish-green, the sides and the middle of the back tinted with rose colour, a row of very indistinct dusky spots along the back, run together in a black line on the last segment, and bordered by an interrupted black line. There is a row of slanting dull yellowish red stripes on each side, the head black.

The date of the appearance of the caterpillar is in March and April.

It feeds on the catkins of the sallow.

The chrysalis is found in a slight cocoon, among earth, roots of grass, or moss; it is of a pale golden yellow colour, the thorax and wing cases tinged slightly with greenish.

EUPITHECIA SUBCILIARIA.

Plate XXX. *Figure* 12.

This insect measures from rather under three quarters of an inch to that width in expanse.

Male: fore wings dull yellowish-grey, crossed by numerous darker lines, the outer margin dark grey; third

line paler grey, crossing the marginal shade; the antennæ are slightly pectinated.

The perfect insect appears in July.

Localities for this species are Darlington, Halton, Ipswich.

EUPITHECIA DODONEARIA.

Plate XXX. *Figure* 13.

This insect measures three quarters of an inch or a little over in expanse.

Male: fore wings whitish grey, crossed by numerous dark grey waved lines; third line whitish, most distinct at the lower corner; central spot black, in the middle of a whitish blot.

Localities for this species are York, Brighton, Ipswich, Worthing, Lewisham, Kingsbury.

The perfect insect appears in April,? June, and July.?

The date of the appearance of the caterpillar is in June.

It feeds on the oak.

EUPITHECIA ABBREVIARIA.

SHORT PUG.

Plate XXX. *Figure* 14.

This insect measures rather more than three quarters of an inch to nearly an inch in width.

Male: fore wings pale grey crossed by numerous waved darker lines, and beyond the middle by a pale band, from which two grey blots run across the dark grey outer margin; third line pale grey, whitish towards the lower corner; central spot black.

Localities for this species are York, Scarborough, Worthing, Birkenhead, Lewes, Lyndhurst, Dulwich, Cambridge, Manchester, Lewisham, Darlington, Newcastle-on-Tyne, Torwood, Exeter, Pembury, Kingsbury, Stowmarket.

The perfect insect appears at the end of April and in May. May 1, May 2.

The caterpillar is pale yellowish-red, with a pale olive line along the back, and a series of pale olive angular marks, sometimes bordered with yellow and frequently run together in a broad line, the side line yellowish, the divisions between the segments red; underneath is sometimes a yellowish line.

The date of the appearance of the caterpillar is in June and July.

It feeds on the oak.

The chrysalis is enclosed in a slight cocoon of earth; it is bright red, the thorax and wing cases paler, the divisions on the body, and the tip, deep red.

EUPITHECIA EXIGUARIA.

BARBERRY PUG.

Plate XXX. *Figure* 15.

This insect measures from rather more than three quarters of an inch to nearly an inch in width.

Male: fore wings dull yellowish-grey, crossed by numerous waved lines, the ground colour forming a pale broad central band, divided by two short black lines, and beyond it is a narrow band; third line rather indistinct; central spot grey.

Localities for this species are York, Bothwell, Newcastle-on-Tyne, Cambridge, Halton, Stowmarket, Lower Guiting,

Ipswich, Eastham near Birkenhead, Darlington, Kingsbury, Bristol, Edinburgh, Lewes, Exeter, Manchester.

The situations where it is found are woods and hedges.

The perfect insect appears in May, June, and July.

The caterpillar is dark green with a row of small dull red angular-shaped spots in the centre of each of which is a small yellow spot, along the back, sometimes wanting on the first segments and their place supplied by a greenish line, connected by a line of the same colour; the side line red, bordered with yellow; the divisions between the segments yellowish.

The date of the appearance of the caterpillar is in September and October.

It feeds on the whitethorn, the blackthorn, the barberry, the snowberry, the black-currant, the ash, the alder, the sallow, and the dogwood.

The chrysalis is enclosed in a cocoon of earth, and is dusky on the body and thorax, the wing cases dark olive green, the divisions on the body yellow.

EUPITHECIA SOBRINARIA.

JUNIPER PUG.

Plate XXX. *Figure* 16.

This insect measures rather more than three quarters of an inch in width.

Male: fore wings grey with a faint reddish tinge, and crossed by numerous darker waved lines; third line pale grey and waved, most distinct at the lower corner; central spot black but indistinct.

Localities for this species are Arran, Glasgow, Newcastle-on-Tyne, Brighton, Manchester, Edinburgh, Halton, Dover, West Looe, Stowmarket.

The situations where it is found are old trees in gardens and shrubberies.

The perfect insect appears in July, August, and September.

The caterpillar is variously dark green or yellowish-red, with a series of rust-coloured blots along the back, intersected by a dark green line, bordered on each side by a yellowish one; sometimes the spots are wanting on the last segments, or even absent altogether; the side line waved and pale yellow; underneath the body is a whitish line.

The date of the appearance of the caterpillar is in May and the beginning of June.

It feeds on the juniper.

The chrysalis is found enclosed in a cocoon of earth, or in a slight web; the head, thorax, and wing cases are dark green, the body yellowish.

EUPITHECIA TOGARIA.

Plate XXX. *Figure* 17.

This insect measures from rather under an inch to an inch in expanse.

Male: fore wings pale dull yellowish-grey, crossed by two reddish bands, one near the inner corner, the other before the third line. The first line is waved and black; second line also waved and black; central spot black.

Localities for this species are Richmond in Yorkshire, Darlington, Marden, Halton, Black Park.

The perfect insect appears in June.

EUPITHECIA PUMILARIA.

DOUBLE-STRIPED PUG.

Plate XXX. *Figure* 18.

This insect measures from rather under three quarters of an inch to that width in expanse.

Male; fore wings whitish-grey, with a reddish tinge. The first line is very distinct; also the second line, which is followed by a slender white band; third line indistinct; the outer margin rather dark reddish-grey; central spot very faint. Hind wings pale grey, darker towards the outer margin, crossed by a dark bent line.

Localities for this species are Scarborough, Exeter, Glasgow, Isle of Wight, Barnstaple, Ipswich, Birkenhead, Manchester, Brighton, Bristol, West Looe, Arran, Cambridge, and the Isle of Man.

The situations where it is found are woods.

The perfect insect appears in April, May, July, and August.—July 16.

The caterpillar is differently pale yellowish-olive, reddish-olive, or rusty-red; a dusky blackish-olive line along the back, and a chain of dusky marks more or less distinct, partially bordered with yellow, and emerged in the line on the first and last segments; on each side a broad yellowish stripe, dusky on the edges, the side line yellowish, or pale yellowish-green, with an olive-coloured line along the back, longitudinally uniting and laterally dividing a series of marks of the same colour merging in the central line on the first and last segments; on each side of it two other olive-coloured lines; underneath pale dull green, dusky at the edges; the spots and lines vary much in depth of colour, and are sometimes almost wholly absent.

The date of the appearance of the caterpillar is in June.

It feeds on the flowers of the clematis *(Clematis vitalba)*, the wild parsley *(Anthriscus sylvestris)*, and the convolvulus *(Convolvulus major)*.

The chrysalis is enclosed in a slight cocoon of earth; and has the body yellow, its tip red, the divisions slightly marked with red, the thorax and wing-cases pale yellow.

EUPITHECIA CORONARIA.

THE V-PUG.

Plate XXX. *Figure* 19.

This insect measures from between half an inch and three quarters of an inch to the latter width in extent.

Male: fore wings pale dull green; the first line is dark grey and bent; the second line most distinct near the upper margin and sharply jagged, with a double grey blot before it near the latter.

Localities for this species are Scarborough, Lyndhurst, Exeter, Kingsbury, Darenth Wood, Bristol, Barnstaple, Lewes, Killarney, Lewisham, Worcester.

The perfect insect appears in April, May, June, July, and August.

The caterpillar is exceedingly variable, yellowish-green, with three reddish lines along the back, the middle one interrupted, and in some instances spread out into a row of angular-shaped spots, the two others very indistinct; or, pale green, the line and spots entirely or almost entirely wanting; or, greenish-yellow with a series of rust-coloured angular-shaped spots or bars along the back, the sides and lower part more or less tinged with rust colour, the divisions between the segments bright yellow; or, bright

yellow with a row of broad dull red bars along the back, interrupted and bordered by lines of the same colour, the sides and lower part much clouded with red.

The date of the appearance of the caterpillar is in July, August, and September.

It feeds on the flowers of the clematis *(Clematis vitalba)*, hemp agrimony *(Eupatorium cannabinum)*, the golden-rod *(Solidago virgaurea)*, and the wood angelica *(Angelica sylvestris)*.

The chrysalis is enclosed in an earthen cocoon, and is pale yellowish-red, the thorax and wing cases having been at first spotted with black.

My best thanks are due to Mr. T. H. Allis, of York, for very obliging assistance to my artist.

EUPITHECIA RECTANGULARIA.

GREEN PUG.

Plate XXX. *Figure* 20.

This insect measures rather above three quarters of an inch in expanse.

Male: fore wings deep green, the first line is dark grey and much curved, turning in towards the inner corner; second line dark grey rather bent near the upper margin; the space between the two dull grey-green; third line pale green; the outer margin clouded with grey; central spot blackish.

Localities for this species are York, Scarborough, Huddersfield, Glasgow, Bromsgrove, Birkenhead, Edinburgh, Manchester, Bristol, Exeter, Newnham, Wavendon, Brighton, Cambridge, Halton, Newcastle-on-Tyne, Lower

Guiting, Worthing, Kingsbury, Stowmarket, Darlington, Lyndhurst, Tenterden.

The perfect insect appears in May, June, and July.

The caterpillar is very pale yellowish-green, becoming paler with age; the central line on the back variable in width and depth of colour, rusty red, and sometimes dark green, and occasionally wanting altogether; the divisions between the segments reddish, the side line yellowish-green.

The date of the appearance of the caterpillar is in April and May.

It feeds on the buds and blossoms of the apple and crab-apple and the pear.

The chrysalis is enclosed in a cocoon of earth, deep red at and towards the end; the thorax and wing cases yellow, tinged with olive colour.

I have also to thank Mr. Edward Doubleday, of Epping, for several obliging communications.

EUPITHECIA DEBILITARIA.

LITTLE PUG.

Plate XXX. *Figure* 21.

This insect measures from rather under three quarters of an inch to an inch in expanse.

Male: fore wings very pale greenish; the first line indicated by black dots; the second line the same; central band rather darker green; central spot black.

Localities for this species are Spitchweek and Lynton, Devonshire, Killarney, West Looe.

The perfect insect appears in June.

My thanks are here also due to the Rev. H. H. Crewe, of Breadsall Rectory, Derbyshire.

EUPITHECIA TRIPUNCTARIA.

Plate XXX. *Figure* 22.

This insect expands to the width of one inch in fine specimens.

Male: fore wings dark grey, with lighter transverse shades; a very distinct though interrupted white line on the hind margin; in the lower corner is a large triangular white spot. Central spot black, small, but distinct. Hind wings paler grey, lighter near the body; central spot plain. A distinct white spot in the lower corner; nerves powdered with white. There is also a distinct white spot at the juncture of the thorax and the body.

Localities for this species are various parts of Suffolk, Hertfordshire, and Derbyshire.

The situations where it is found are woods in damp shady places.

The perfect insect appears in June.

The caterpillar is pale yellow, more or less suffused with rich brown. Along the back, which is greenish-yellow, is a series of deep brown spots bordered on each side by a slender line of the same colour, and below it a row of slanting bright yellow stripes and deep brown blots. Underneath, greenish-yellow. Central line deep brown; on each side of it a much broader one of the same colour. A variety has the ground colour yellowish-green, studded with minute white raised spots, with a line along the back of dusky brown spots connected by a central line of the same colour, fading off on the hind segments, and confluent on the front ones; on each side is a series of dusky blots. Central line beneath dusky, but interrupted. In another, the line along the back, and that on each side of

it, and the blots on the sides are almost or entirely wanting, leaving the whole a uniform pale yellowish-green.

It feeds on the wood angelica (*Angelica sylvestris*), and cow-parsnep (*Heraclium spondylium*).

The date of the appearance of the caterpillar is in August, September, and October.

The chrysalis is enclosed in an earthen cocoon.

I have to thank the Rev. Joseph Greene, Rector of Cubley, near Doveridge, Derbyshire, for the accounts of this and the following new British species.

EUPITHECIA TRISIGNARIA.

Plate XXX. *Figure* 23.

This insect measures three quarters of an inch, sometimes reaching to nearly an inch in expanse.

Male: fore wings dull brown, with indistinct transverse shadings, somewhat paler; the line along the outer margin pale and sometimes very obscure. Central spot very large, black, and gradually shading off; on the upper margin are some dark shades. Hind wings uniformly dull greyish-brown; the central spot very indistinct.

Localities for this species are near Cubley, Derbyshire.

The situations in which it is found are woods in damp places.

The perfect insect appears in June.

The caterpillar is of a pale green ground colour, with a line along the back, and another on each side of it of dark green, the latter broader than the former; the side line whitish and waved; the head black. Underneath green, with a central yellowish line.

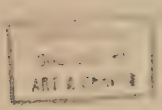
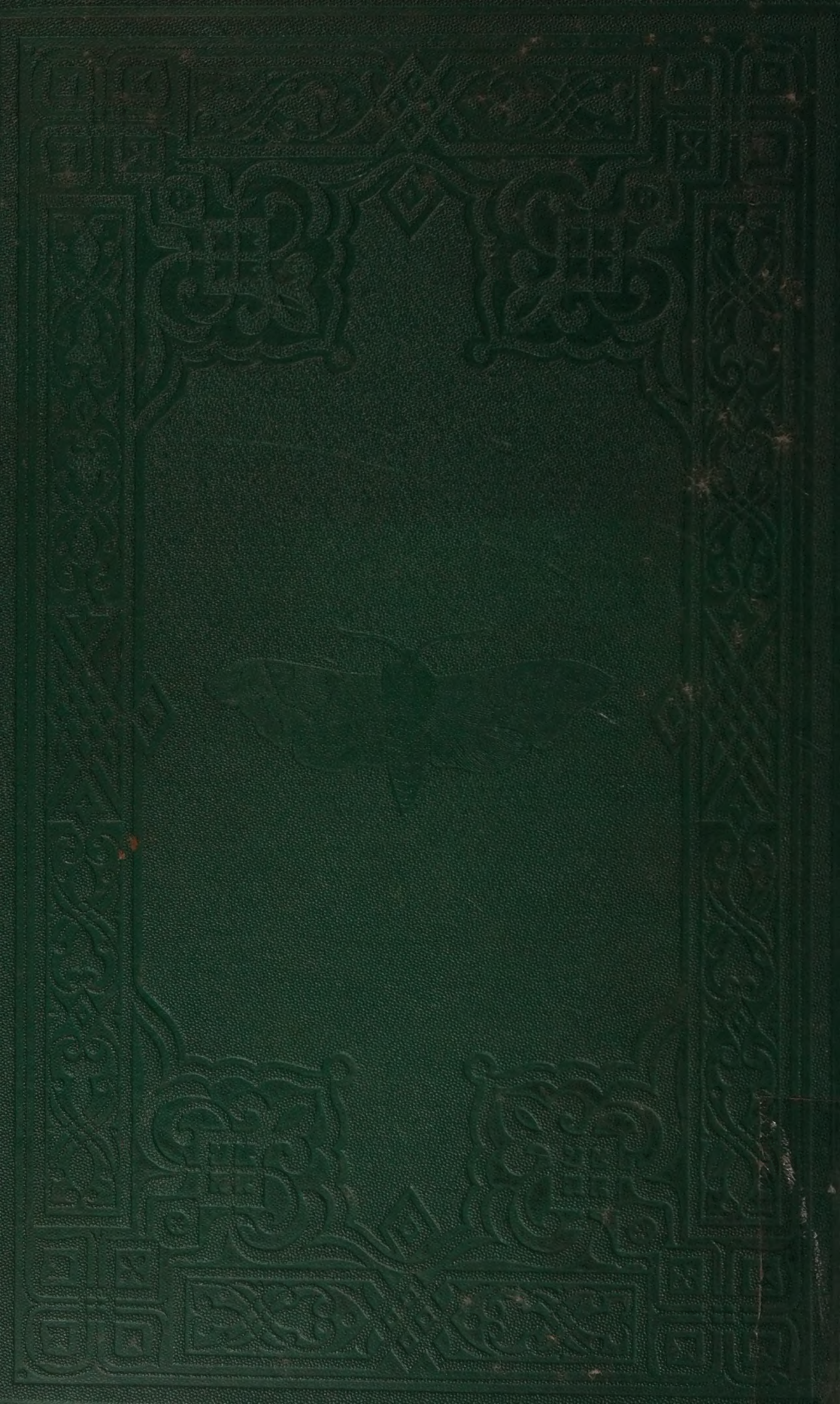
It feeds on the wood angelica (*Angelica sylvestris*).

The date of the appearance of the caterpillar is in August, September, and October.

The chrysalis is enclosed in an earthen cocoon.

I must not conclude this volume without also thanking Mr. Adam White, of the British Museum, for many kind assistances to my artists.

END OF VOLUME I.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